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Dynamic qualities of motion crosslinguistic semantics through Laban analysis

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DYNAMIC QUALITIES OF MOTION
CROSSLINGUISTIC SEMANTICS THROUGH LABAN ANALYSIS

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ABSTRACT
DYNAMIC QUALITIES OF MOTION
CROSSLINGUISTIC SEMANTICS THROUGH LABAN ANALYSIS

by Jimmyle Listenbee

While linguists generally agree on spatial parameters in motion description, qualitative elements, known as "manner of motion," remain poorly defined and grossly differentiated. This study applies an extensive, finely grained taxonomy for the systematic observation and description of human motion known as Laban Movement Analysis (LMA) to identify and compare semantic elements of motion descriptions in three typologically diverse languages.

Nine subjects, native speakers of English, Spanish, and American Sign Language (ASL), were videotaped describing brief movement sequences in 6 stimulus video clips. Semantic elements present in the crosslinguistic data thus obtained were then analyzed and compared with elements precoded by certified Laban Movement Analysts. Results show that the same semantic manner-of-motion elements occur crosslinguistically in these three languages more frequently and consistently than expected, but often encoded by forms other than words, and suggest that LMA can function usefully as a tool for bridging linguistic and nonlinguistic comparisons.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

In the description of human motion, cognitive linguists (Langacker, 1991; Svorou, 1994; Talmy, 2000a, 2000b) have rather consistently identified certain spatial parameters including location, direction, and path, thereby establishing a firm basis for their application in research. On the other hand, qualitative parameters, known as *manner-of-motion,* remain poorly defined and grossly differentiated. Dan I. Slobin has noted that " 'manner' covers an ill-defined set of dimensions that modulate motion, including motor pattern, rate, rhythm, posture, affect, and evaluative factors" (2004, p. 223). This lack of differentiation poses problems in comparing the semantics of motion description crosslinguistically.

Since an extensive, subtly differentiated descriptive taxonomy for the systematic observation and description of motion-quality is provided by a method known as Laban movement analysis (LMA), this study was undertaken in order to evaluate its usefulness as a tool for crosslinguistic semantic classifications of manner-of-motion through applying it to parallel descriptions of motion events in typologically diverse languages. Previous application of LMA has typically been limited to research and application in movement-based psychology and anthropology, and to performance coaching and style analysis in drama, dance, and athletics.

Need for Study

Problems in crosslinguistic semantics of manner-of-motion are especially acute

when the comparison is between languages that Talmy (2000b) has classified typologically as *S-languages*, that is, *satellite-framed,* versus others that he calls *V-languages,* that is, *verb-framed.* Difficulties increase further when the task involves the analysis of a language, such as a signed language, that defies Talmy's classification.

S-languages, including English, tend to conflate manner with motion on finite verbs such as "sneak," while expressing state-changing co-events through a sister constituent, called a framing *satellite* (S), such as the particle "in," as seen in Example 1. "Sneak" carries a generous collection of manner elements, meaning that "a sentient being travels quietly, deliberately, and carefully, avoiding discovery," with an additional default connotation through its first argument, "Mary," of "by his/her feet," but it says nothing about the direction, shape, or goal of the sneaky path, or any boundaries within it.

1. English

Mary	snuck		in
N	V.3sg.past		particle
	V	+	S
Agent	Move+manner	Accomplishment	

V-languages, including Spanish, tend to conflate changes-of-state with motion on finite verbs, such as *entrar* "to enter," with manner being expressed mostly through adverbials, such as *sigilosamente* "sneakily, stealthily," as in Example 2. *Entrar* means "to go inside or across some boundary," but it says nothing about the manner in which its first argument proceeds, nor the class of the argument.

Example 2 introduces two notational conventions common to the field of linguistics that are used throughout this thesis: Spanish data items are italicized and English glosses of all non-English linguistic expressions are enclosed in single quotation

marks. A complete key to all notational conventions used in this thesis appears as Appendix A. A complete key to all abbreviations used herein appears as Appendix B.

2. Spanish

María	*entró*	*sigilosamente*
N	V.3sg.past	Adv
Agent	Accomplishment	manner

'Mary entered sneakily'

Signed languages, including American Sign Language (ASL), encode manner elements on a variety of expressions including classifiers, facial expressions, articulatory sound-producing actions, actions of the whole body, and lexical hand movements known as Signs, thus they are quite different from both V-languages and S-languages. These expressions occur both simultaneously and successively in an interweaving, overlapping stream of discourse, as illustrated in Example 3. The complexity of how languages operating in the kinesthetic/visual expressive/perceptual mode encode meaning is reflected in the complexity of the notation required to present ASL examples. Example 3 displays sequential elements horizontally with simultaneous elements stacked in vertical levels. These levels are explicitly lettered and numbered in Example 3 to emphasize the structure of the presentation, with so-called *nonlinguistic modifiers,* that is, adverbial modifiers appearing in facial expressions, nonverbal sounds, head gestures, and other expressive actions on lettered levels above the discourse line. Line 1 is the main discourse line, with lexical elements in small capitals, according to conventional ASL notational practice, line 2 below line 1 contains morphosyntactic analysis, line 3 semantic analysis, with modifiers to main constituents layered below. The English gloss appears in single quotation marks on the bottom line. Another notational convention introduced in Example 3 and used

throughout this thesis is the traditional ASL notation for fingerspelled (FS) words, that is words encoded letter-by-letter in the ASL alphabet, in small capital letters separated by hyphens. The traditional ASL term *classifier* (CL) is used in Example 3 and throughout this thesis to refer to conventionalized handshapes that stand for certain nominal categories. Pictorial examples of classifiers are shown in Figure 1. A number after CL indicates which constituent that classifier references, in order of that constituent's appearance in discourse. Classifiers and their status are fully discussed below in this chapter.

3. ASL

Line B		Facial gesture (mischievous) Full body action (sneaky)	
Line A	nod		
Line 1	**GIRL M-A-R-Y**	**CL1.BIPED**	**CL2.FLAT**
Line 2	N FS Agreement	PRO.V.Move.Adv (+toward)	N.door
Line 3	Agent	Activity > Accomplishment (jerkily) (tiptoeing)	Goal

'Mary tiptoes sneakily and mischievously toward the door'

The Role of Gesture in Spanish and English

Slobin has observed that English speakers have the option to augment manner-of-motion verbs with gestures, and that when they do so, the gesture is likely to include both path and manner, or path only, but rarely manner alone, whereas Spanish speakers frequently use speech-augmenting gestures that describe both and/or either (2004, p. 232). McNeill suggests that it would be an error to assume that when manner does not appear in speech that it necessarily vanishes from consciousness. He presents research

showing both path and manner elements expressed on gestures occurring both independently and concurrently with speech in English and Spanish, giving several examples where manner is lacking in linguistic expressions in Spanish, but richly present in gesture (2005, p. 200).

Choice of Experimental languages: English, Spanish, and American Sign Language (ASL)

Slobin (2005b) has suggested that, in order to understand iconicity in language,

> ...it is necessary to have an independent, relatively objective characterization of the signified... [that we base our reference points on] empirical observation of language in use – in natural contexts such as narrative and comprehension of narratives, and in experimental settings that seek to establish precise relationships between aspects of particular linguistic expressions and particular cognitive processes... [and that] This work needs to be done in an explicitly comparative framework that is not only crosslinguistic but also cross-typological (p. 320).

English, Spanish, and ASL were chosen as the focus of the experiment for several reasons. First, they are classic examples of three distinctly contrasting typologies. English is an S-language with many verb-plus-satellite constructions such as "bump into" and "climb up on" and many evocative manner-of-motion encoding verbs, such as "frolic" and "trudge." Spanish is a V-language with many dynamically neutral verbs that express boundary-crossing translational motion, such as *venir* "to come" and *regresar* "to go back," while manner-of-motion is more often seen on adverbs such as *rápidamente*

"rapidly." ASL is an example of a language representing neither typology but with plentiful expressions of manner-of-motion coded on diverse kinesthetic/visual expressions.

Second, these languages illustrate a linguistic to nonlinguistic continuum of manner encoding, not only concerning the role of gesture, but that of the whole body. That is, English speakers are known to supplement language with gestures, Spanish speakers to sometimes to substitute gestures for language, (Slobin, 2005a, 2005b; McNeill 2005), and ASL signers to rely on kinesthetic/visual elements along a language-internal continuum of lexicalization (Liddell, 2003).

The third reason for studying English, Spanish, and ASL was pragmatic. These three languages are more directly accessible to the investigator than others, both by the fact that she herself is a native speaker of English for whom Spanish and ASL are the most fluent second languages, and the fact that it was easy to recruit from a large pool of ASL-signing and Spanish-speaking subjects at her place of employment.

Influence of ASL Perspective on the Perception of what is "Linguistic"

The emergence of sign language linguistics during the second half of the twentieth century has provided fresh perspective on linguistic theory while creating new demands on general methods of linguistic analysis. As Example 3 demonstrates, English translations freely utilize both linguistic and nonlinguistic expressions to make sense out of ASL statements. This practice holds within this thesis, while glosses of Spanish are still limited to the content of lexical expressions only. In ASL, boundaries between linguistic and nonlinguistic expressions are fragile, shifting, or perhaps nonexistent. Of

great relevance to this thesis is the fact that Liddell (2003) makes no distinction as to the linguistic status of any such items, considering them all equal participants in an integrated system.

Since the pioneering work of Stokoe (1960), and his colleagues (Stokoe, Casterline, & Croneberg, 1965), ASL linguists including Klima and Bellugi (1979), Liddell (1984; 1990), Valli and Lucas (1995); and Neidle, Kegl, MacLaughlin, Bahan, and Lee (2000), have demonstrated that the simultaneous encoding of several manner elements, which is so prevalent in signed languages, not only challenges traditional linear morphosyntactic analysis, but also requires a re-evaluation of the linguistic status of so-called *paralinguistic* forms, including gesture and posture.

A focal area for debate as to its linguistic status among ASL scholars is the item traditionally known as the classifier. Certain handshapes in this category seem to have achieved lexical status and are traditionally glossed as generic nouns such as PERSON, VEHICLE, BIPED, and FLAT SURFACE, as illustrated in Figure 1.

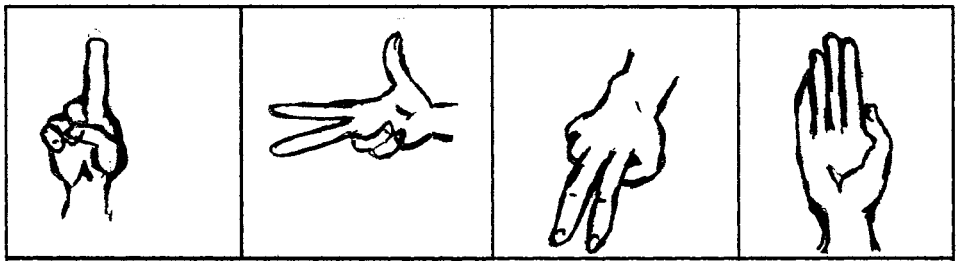


Figure 1. Four ASL classifiers

A wide spectrum of current theoretical perspective on classifiers is found in Emmorey (2003). For the sake of simplicity, the traditional use of the term is maintained throughout this thesis.

Expanded Perspective on Linguistic Elements of Manner-of-Motion

Slobin (2005a, pp. 28-30) has cautioned against the limits of traditional linear analysis in describing simultaneous languages. He emphasizes a respectful, searching attitude toward the power of any transcription method, including its selection of classification terms, to influence conclusions drawn from data. Reminding us that transcription can never be "theory-neutral," he quotes Ochs's elegant (1979) phrasing of the problem: "Transcription is theory." This perspective, refined by Slobin through extensive work in signed languages (Slobin, 2005a; Slobin & Hoiting, 1994; Slobin, Hoiting, Kuntze, et al., 2000), including his collaborative work in developing the Berkeley Transcription System for sign language research (Hoiting & Slobin, 2002), suggests a present need for improved differentiation of the semantic elements that comprise manner-of-motion. Further support for that endeavor can be seen converging from several sources including (1) the lifelong work of David McNeill, synthesized in his latest book (2005), on his theory of an integrating linguistic impulse called the *growth point*, which is the source of both word and gesture in discourse, (2) cognitively-based analytic methods recently developed by ASL linguists Brentari (1998), Dudis (2004), Liddell (2003), and Quinto-Pozos (2006) (discussed further below) and (3) research by traditional but exploratory linguists such as Mark Aronoff, who, in collaboration with two sign language linguists, concluded that iconically-based morphology is expected in any language that is

capable of it (Aronoff, Meir, Sandler 2005, p 338). It must be noted that although these authors excluded kinesthetic/visual elements from being considered linguistic in spoken languages, it is also true that during discourse, English and Spanish speakers can most often see their interlocutors as well as hear them.

Laban Movement Analysis (LMA)

LMA, as defined by Laban and Lawrence (1947), Laban (1948, 1950, 1966), Preston-Dunlop (1963), Dell (1977), Malatic (1987), Moore and Yamamoto (1988), Listenbee (2005), and C-L. Moore (2005), promises usefulness as a precise tool for examining parallel semantic elements in crosslinguistic descriptions of motion quality within typologically diverse languages. An extensive, comprehensive system, it includes approximately 1,000 independent descriptive variables, grouped, according to Bartenieff (1980), into three major categories: (1) bodily motion itself (basic anatomical actions such as flexion and rotation, as they are integrated through the neuro-muscular and skeletal systems during action, and basic action motifs, such as "jump" and "turn"), (2) space including (a) the static parameters of form, size, dimensionality, orientation, location, and relationship, including the specific body parts involved in contact and support, and (b) the *dynamic,* that is, changing, facts of motion through time, and (3) *effort* (dynamic quality). The term "effort" is used exclusively in this special LMA sense herein.

LMA variables chosen for this study

In order to focus more keenly on dynamic quality, LMA variables were limited and the elements of path and direction were generally excluded. Variables selected for application in this study were 1) effort, including its many elements and their

configurations, described in Chapter 3, (2) static spatial form of entities, comprising "long," "flat," "round," and "twisted," and (3) relational situations of contact and support. One situation where a static form becomes dynamic was also included, that of moving contact in brushing and rubbing actions. Distinctions of *supported by* versus *supporting on*, as in a situation where a child stands on an adult's shoulders, supported *by* his feet *on* the adult's shoulders, were also pertinent to this analysis. A glossary of LMA terms used in this thesis appears as Appendix C. Figure 2 shows the relationship of LMA elements applied in this study to the semantics of manner-of-motion.

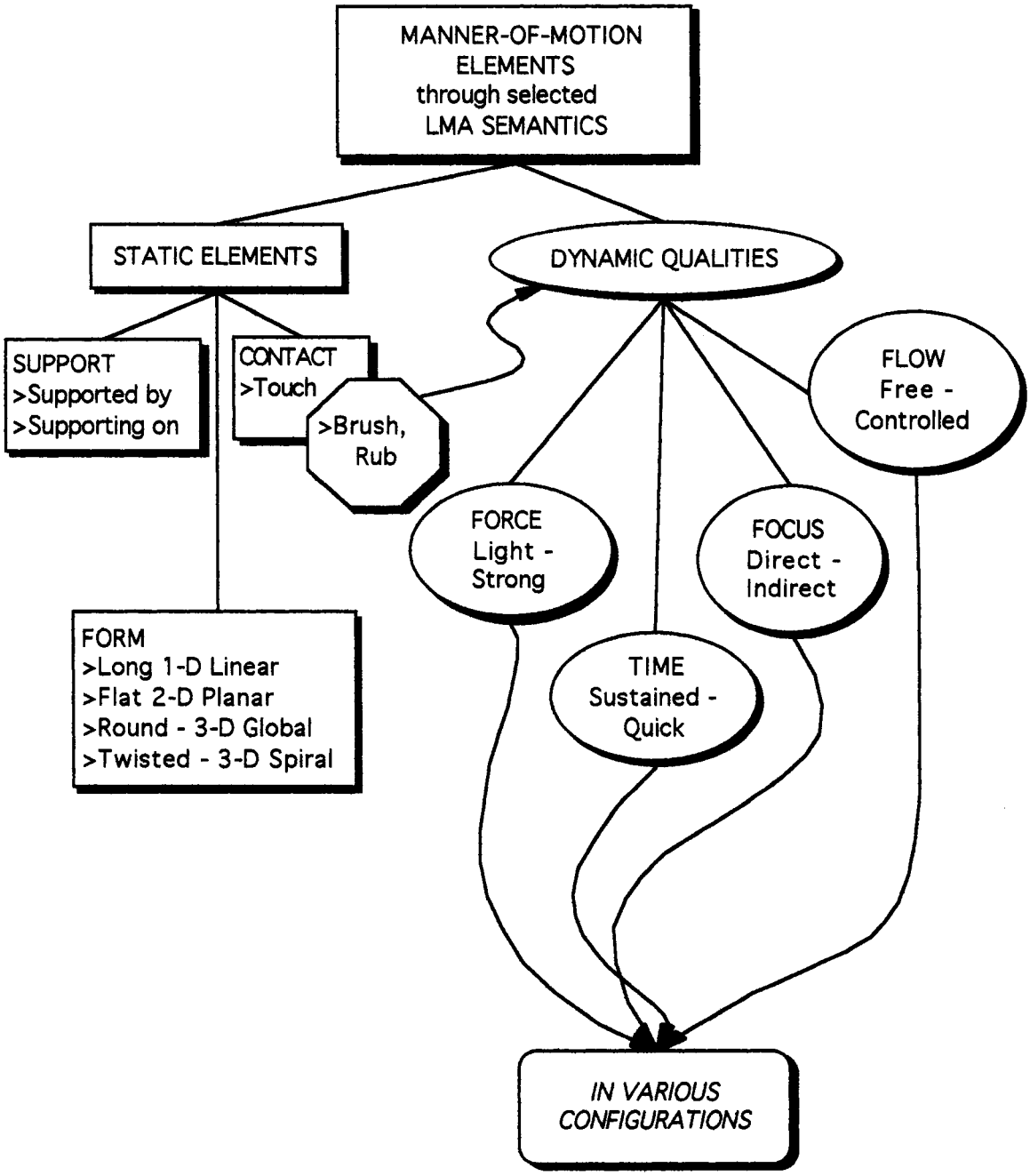


Figure 2. Manner-of-Motion Elements through Selected LMA Semantics

Background of LMA

LMA was developed from Rudolf Laban's theories of movement concerning its functional and expressive uses by his colleagues and himself in Germany and England from the 1930's through the mid-1960's. The two fundamental concepts most relevant to this study that appear in Laban's original writings are (1) his theory of effort (1948, 1950), which is the inner integrating impulse of any human in motion that organizes his/her dynamic quality of movement in ways that the mover experiences and the observer can interpret as being expressive of quality and feeling, and (2) his analysis of the integrity of movement and its quality in dynamic spatial form (1966).

Further subsequent and continuing developments by Laban's former students include extensive refinement and codification of his symbolic notation system by Guest (2005) and by Guest and Curran (in press), expansion and clarification by Preston-Dunlop of his theories of effort (1963) and dynamic spatial form (1984), wholistic theoretical integration and application of the many facets of the system by Bartenieff (1980), and application of his integrated dynamic theories to decision-making style in managerial team-building by Lamb (1965). Both Laban's notion of effort and Lamb's *posture-gesture merger* (PGM) exhibit strong similarities to McNeill's growth point, both in the physical fact of their performative and observable nature and in the meaning ascribed to them by all three theorists. A PGM is seen when gesture and postural change occur simultaneously or in overlapping succession from an authentic expressively integrating impulse. Further developments of Lamb's work are described by both Davies (2001) and Moore (2005), including his theories concerning distinctive individual patterns

of how gesture and posture merge during discourse. Davies offers the following example to illustrate the authenticity expressed by a PGM:

> Imagine a man saying something like "I would like to bring everyone together to solve this thing rationally." He might raise his arms to encompass an imaginary group and as he does so merge this action into a postural adjustment by also lifting his torso. In this case the gesture has merged into the posture. If the action remained a gesture with no postural adjustment the speaker would be so much less convincing. (p. 89)

Although English words are employed to describe the LMA expressed in this thesis, the system itself uses abstract notation for movement concepts that exist crossculturally. Written in vertical staffs that are read from the bottom upward, actions can be aligned by seconds to digital video, which was useful here in correlating preanalysis of stimulus materials by certified Laban Movement Analysts (CMAs) for this experiment. An annotated notation sample appears as Figure 2. It shows four seconds of video Stimulus Vignette 3. The moment shown just before second 43, when Dora throws her sponge, is a PGM featuring the intense effort dynamics of a slashing action (identified as a "P-slash" because it is done with the force, quickness, and free flow of an LMA passion-type movement) and a strong accent (the solid black symbol somewhat resembling an apostrophe). Complete prose descriptions with accompanying notation scores for each stimulus vignette appear as Appendix D.

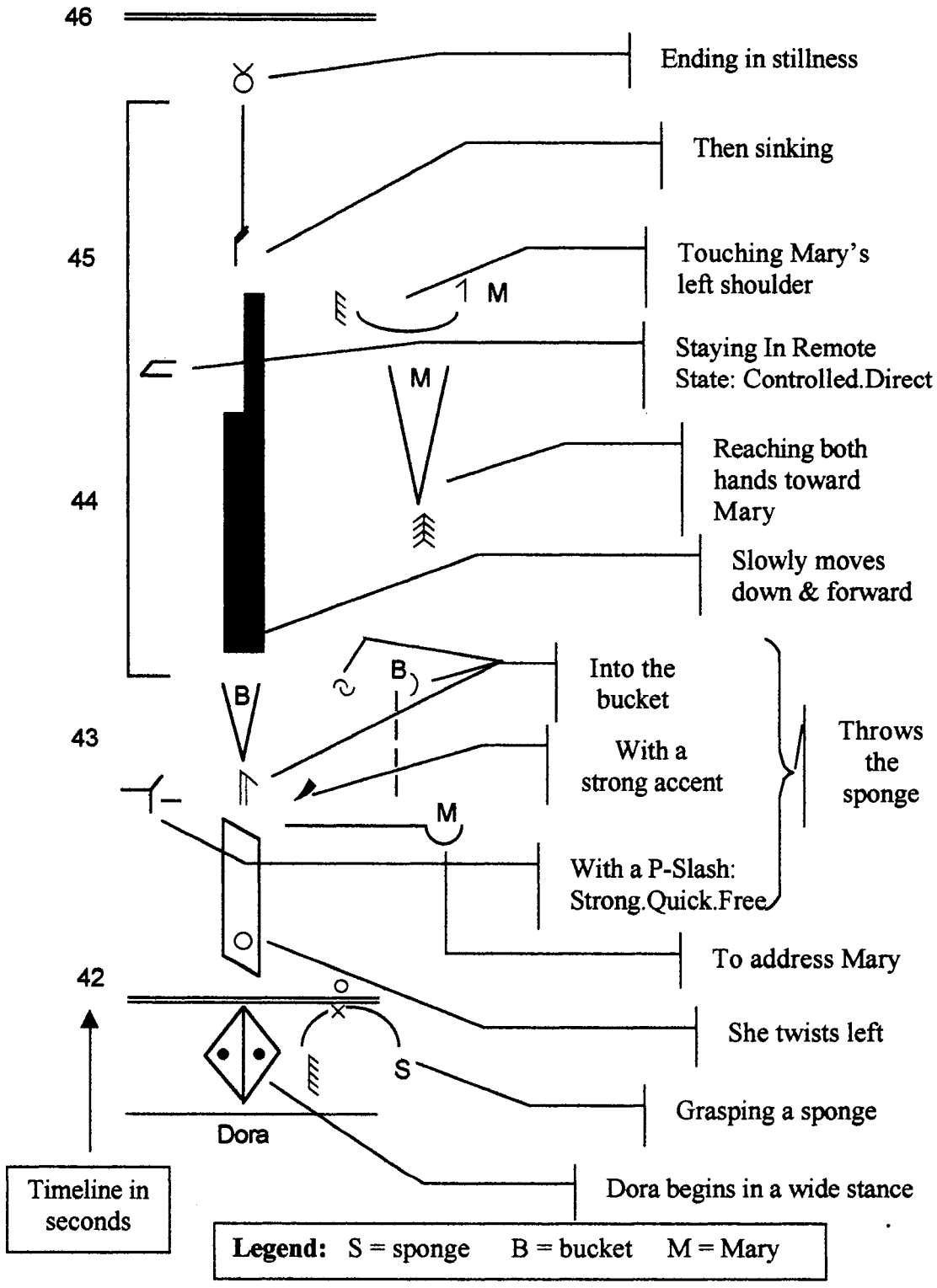


Figure 3. Sample LMA Score: Excerpt from Stimulus Vignette 3

LMA in research

Research applications of LMA since 1980 until recently have been few. Descriptive applications in psychological research by Bartenieff and Davis (1972) and in nonverbal communication by Davis (1979), Kestenberg's account of its use to assess developmental patterns of infants (1979), and North's application to personality assessment (1972) remained standing as models of quality concerning the method, its potential, and the reporting of its experimental application until the close of the twentieth century. Since then, however, renewed interest has surfaced. Published articles describing research applications of LMA include anthropologist Brenda Farnell's account of Assiboine story telling (2002) psychologist Patricia Marek's case study of a patient's behavioral style (2003).

Refinement of the Analysis of Movement in Mainstream Linguistic Research

In addition to LMA, other finer grained systems of movement analysis are appearing more frequently in current linguistic research. Recent studies in ASL linguistics have produced increasingly clear distinctions between various movement parameters. Throughout her comprehensive volume on ASL phonology (1998), Diane Brentari presents a complex, integrated theory with highly and consistently differentiated parameters based on anatomically sophisticated motion analysis. She discusses the perceptual immediacy of simultaneous "vertical" processing available through kinesthetic/visual languages versus the retroactive comprehension over time required by sequential or "horizontal" processing in oral/aural languages, and emphasizes the reciprocal relationship of immediate processing with highly loaded simultaneously

encoded linguistic information. Brentari's thesis that range of motion with the resultant size of the form thereby produced is the main determinant of visually perceptual salience informs the analysis of actions of the whole body found in crosslinguistic data within this study.

Highly loaded simultaneous communication requires conceptual *blending* of diverse references in the signal. Fauconnier and Turner (1996) first described a cognitive process called "blending" that underpins current proposals and findings by ASL theorists Liddell (2003), Dudis (2004), Wolf and Dudis (2005), and Quinto-Pozos (2006) accounting for descriptions simultaneously expressed with many different parts of the body by signers. Simply stated, a cognitive blend projects conceptual elements from two distinct *mental spaces* onto a third *blended* space, where partial structures from each source are incorporated to create an integrated third conceptual structure, which goes beyond the first two, the *blend* (Fauconnier, 1997, p. 22).

Liddell (pp. 148-151) illustrates blends with a concrete example involving the description of how two buildings and a street (mental space 1) relate geographically. A concrete model of them is set up with cups and a knife on a table surface (mental space 2), then the narrator can refer to a "building" in the blended space by pointing to a cup while uttering "...this side of my house..." Liddell elaborates a consistently reasoned and elegantly illustrated method whereby simultaneous Signs, facial expressions, sounds, and all types of gestures and postural actions can be understood as blends in ASL. He provides models of descriptive method for an exhaustive set of situations where many elements from different mental spaces appear simultaneously on various signed

expressions, including non-visible but indicated ones, distinguishing *grounded blends*, which incorporate real space, from *virtual blends* which do not, and *surrogate blends* in which the signer may participate as an "actor" from "*token" blends* which set up projected miniature scenarios in which he/she cannot. Only grounded and surrogate blends occur in the present study.

Continuing to build on the work of Fauconnier and Turner, as well as Liddell (2003), both Dudis (2005) and Wolf and Dudis (2005) concentrate on blending of initially set-up virtual space mappings with actions of the signer in real space, and on how areas of the body, including manual articulators, may be *partitioned,* that is, viewed as independent elements within the whole gestalt of the signer and the signing space, in order to allow several concurrent linguistic elements into the blend. Dudis employs the notational convention of enclosing elements of a grounded blend inside |vertical strikes| in a vivid description of how partitionable zones may operate in a single blend as follows:

> The conceptual integration network that is produced here is made during a description of someone getting punched in the face. The narrative space input contains the two elements *victim* and *assailant* as well as a relation between the two, [PUNCH *assailant, victim*]. If the *assailant* is mapped onto the signer, this results in a visible element |assailant|, and the punch would be thrown toward a non-visible |victim|. Another option is available to the signer via the partitionability of the manual articulator. The punch would be described from the victim's perspective. In this case, *victim* would map onto the signer, creating a visible |victim|. The |assailant|

is an entirely non-visible element until the punch materializes.

> To demonstrate the punch, the signer maps the *assailant's forearm* onto the partitionable manual articulator, which creates a visible |assailant's forearm|. The fist of this |forearm| moves to |the victim's| jaw.... This interaction suggests that they are both elements of the same blend, ... (p.231).

Dudis also describes the use of partitioned sound articulators in creating oral movements resembling ones that produce onomatopoeic sounds. These may or may not actually result in phonation. He gives the example of [bIp¬] or a silent indication of "[bIp¬]," to accompany the Sign for dripping water, noting that it would be unconventional for WATER-DRIPPING to occur without indicating or producing [bIp¬] (p. 233). Wolf and Dudis (2005, p. 323) illustrate partitionable zones and blended elements in a sample from their data through the narration of a scene involving an honored guest and an erstwhile gift-giver, where the honored guest sees the gift-giver leave in a huff. Visible elements in real space occur simultaneously in four partitionable zones of the signer himself. These represent characters and their emotional attitudes in the abstract narrative space, creating the linguistically meaningful blended space. His right index finger represents the honored guest; his facial expression represents the expression of the gift giver; his eye gaze represents the gaze of the honored guest, and the remainder of his body represents the honored guest.

Quinto-Pozos (in press) found evidence to support the obligatory nature of a signer's using his/her body to depict movements of objects, especially animate objects, at least for some signers in some situations. He found significantly higher ratings by

speakers of sign language for the clarity of such depictions as opposed to descriptions consisting exclusively of Signs and classifiers. While his writing still utilizes a division between the linguistic and the paralinguistic in signed languages, his work suggests movement toward the leveling of these categories already seen in Liddell's recent writings (2003), discussed above.

Quinto-Pozos adopts the term *constructed action* to indicate instances where a signer actually becomes an object or character in a narration. This is similar to the LMA terms *postural action* or posture, which indicates an action of the torso, components of the torso, or the whole body, as opposed to a *gestural action* or gesture, which is an action of an isolated body part excluding the torso, usually of the head, hand, arm, finger(s), leg, foot, and toe(s), but also includes movements of the facial features (facial expressions), but excludes sounds. The Lamb term posture-gesture-merger (PGM) could be used to describe many instances where gestural movements including lexical Signs overlap with characterization, but only when they originate from a spontaneous, integrated impulse - usually unconscious – that McNeill calls the "growth point" and Laban calls the initial source of effort. The term "embodied action" captures a meaning similar to constructed action, but without the implication of an external directorial eye. "Embodied," however, is already taken by cognitive linguists to refer to classically human infantile physical experiences underlying all perception and cognition.

For the purpose of this study, Quinto-Pozos's wisdom in selecting "constructed action" (CA) will be followed in all instances where a narrator takes on the role of a character within the narration, for, as he says, "the ease of discussion" (p. 6).

Even Talmy himself (2003), in considering elements of spatial structure to be applied to the study of both spoken and signed languages, began to reconsider basic elements of motion in terms more parallel to movement analysis, clearly differentiating, for instance, form changes from axial rotations. In creating a working list of thirty independent variables (p. 191), he also proposed path categories, such as "state of continuity" and up-down angle, whose adoption would enhance LMA. Although categories on his list were only intended for coding concurrent representations on classifiers, many can also be applied to whole-body actions of signers and speakers acting as surrogates for characters in constructed actions. His classification of dynamics as 1 single item in 30, which is subsumed under the subcategory of manner under the whole category of space, contradicts LMA theory. Dynamic quality is not spatial; it is an extensive category in itself, with many distinctly different elements.

General Purpose and Specific Hypotheses

The general purpose

It was the general purpose of this study to analyze the semantics of dynamic quality in physical actions of the whole body and its parts as well as in verbal expressions through the application of Laban movement analysis to descriptions of motion events in three typologically diverse languages, exploring the suggestion of Aronoff, Meir, and Sandler (2005, p. 338), that [nonlinguistic expressions] are to be expected in any language that is capable of [them]. Information derived through this process was expected to allow evaluation of the investigator's hypothesis that Laban Movement Analysis can provide a remedy for Slobin's 2004 complaint that manner-of-

motion is "ill-defined" (p. 223), expanding and differentiating Talmy's (2003) manner-of-motion category in order to describe qualitative elements more equitably and accurately.

Specific hypotheses to be tested

1. (After Talmy, 2000b)

   English speakers will encode linguistic expressions of manner-of-motion on verbs more often than Spanish speakers will.

2. (After Slobin, 2004; McNeill, 2005)

   Spanish speakers will use more gestures to encode manner-of-motion than English speakers will.

3. English speakers, Spanish speakers, and ASL signers will each encode comparable identifiable manner-of-motion elements, of both the static and the qualitatively dynamic kind, on both linguistic and nonlinguistic expressions.

4. LMA provides essential and previously missing tools that expand and differentiate the semantics of dynamic versus static qualities in descriptions of manner-of-motion for application in experiments, that Slobin has called for (2005b, p. 320), in comparative crosslinguistic and cross-typological frameworks.

CHAPTER 2

EXPERIMENTAL METHODS

Subjects

Nine subjects over the age of 30 comprising seven women and two men were recruited through casual acquaintance or peer recommendation. Eight subjects were associated with San José City College, including three classified staff employees, two instructors, one student, and two former students. The ninth subject was a neighbor of the investigator. Of 22 potential subjects approached by the investigator, 12 were eliminated by initial screening questions and one dropped out. A complete description of screening procedures appears as Appendix E.

Subjects were offered compensation by the investigator at the rate of $13.50 per hour, which five of them declined to accept.

Subjects who passed the screening tests were provided with legal information concerning benefits, risks, and liabilities, a consent form, and a release to publish form, all for review immediately or during the interim before the scheduled session. An experimental session was then scheduled and communication methods were established.

The rationale for using San José City College as the primary recruiting ground was that as an instructor there, the investigator not only had convenient access to a studio for videotaping, but also had plentiful and convenient access to adult native speakers of English, ASL, and Spanish. Most adult students, professors, and staff in such non-research-oriented academic settings could be expected to provide a sufficient range of

mature vocabulary and intellectual curiosity to motivate full, but not overly linguistically sophisticated, descriptions.

Each of the three experimental languages, ASL, English, and Spanish, was represented by three subjects, all of whom were either native speakers or speakers with native-speaker-like competency. None were linguistically sophisticated, although ASL-signing Subjects 1 and 3 teach conversational ASL at San José City College. ASL-signing Subjects 1 and 3 were deaf, Subject 3 being a true native speaker of ASL and Subject 1 a native speaker of English who became deaf in early adulthood, immediately thereafter acquiring ASL and speaking it in her deaf home and socially for over 30 years. ASL-signing Subject 2 was a native speaker of English with a deaf sibling who had naturally acquired rudimentary ASL along with English in childhood, and had practiced ASL daily both as a professional interpreter and socially for over 25 years. All three English-speaking subjects were native speakers, as were all three Spanish-speaking subjects.

Venues

Sessions were scheduled either in Studio 211M in the San José City College Dance Department or in a private studio at the San José home of the investigator. San José City College facilities use was pre-approved by their supervising dean.

Materials

A DVD containing six 15-45 second experimental vignettes showing actors performing silent movement sequences featuring various motion-quality elements was used as the stimulus for data elicitation. These movies, hereinafter referred to as stimulus vignettes, were originally created by the investigator in 2001 and are the sole property of

LedaSwan, Inc.®, a Mississippi 501(c) non-profit organization of which the investigator is the artistic co-director. The actors appearing in the movies are *LedaSwan, Inc.*® company members. Names used to identify characters in each stimulus vignette are fictitious. For sessions with ASL- signing subjects, cryptic versions of the experimental instructions were created as overhead transparencies and a paper pad and pen were provided for spontaneous extended written conversations English.

Equipment

The six stimulus vignettes were viewed by each subject on a Polaroid PDV-0821T Portable DVD player with 8" swivel screen. Each subject's responses were videotaped using a Sony Handycam DCR-HC20 digital videocamera mounted on a tripod. In the case of the ASL-signing subjects, a Projection Optics Transpaque 40/40 overhead transparency projector was also used.

Procedures

Each subject arrived at the designated studio, which had been set up with the DVD player on a table with two chairs, the digital camera on its tripod aimed at an area with taped toe-markers and a neutral background, and, in the case of ASL-signing subjects, with a paper pad, a pen, and an overhead transparency projector.

After greetings, the requisite consent forms and optional release to publish forms were collected. Copies of all subjects' release and consent forms are on file at the San José State University Office of Graduate Studies as part of the Human Subjects protocol for this thesis. Appendix J contains the offical approval letter for this process.

Each subject was seated comfortably beside the investigator at the playback monitor and instructions were then given generally following the script. A complete script of the experimental instructions is found in Appendix F. In the case of the English and Spanish speakers, instructions were given in English. In the case of the ASL signers, instructions were given in a combination of ASL and English via previously prepared overhead transparencies and extemporaneous conversations via paper and pen.

Speakers of the three experimental languages then each separately viewed the same stimulus vignettes and were then themselves videotaped at full-body distance giving oral descriptions of the sequences of actions in the stimulus vignettes.

In Part A of the experiment, the subjects were instructed to describe "what you see the people doing" in each stimulus vignette. Each subject viewed each stimulus vignette once, then immediately again a second time, then immediately gave a description to the investigator. After all six descriptions were videotaped, a brief break ensued.

In Part B, subjects were instructed to "describe what you saw again, but this time with more emphasis on *how* they do what they do: the manner, the quality, the feeling." Then each subject viewed each stimulus vignette again once more for the third time, then immediately gave a second description, which was videotaped.

CHAPTER 3

METHODS OF ANALYSIS

Preparations for Analysis

Before data analysis began, four preliminary steps were taken to establish focus and standards for comparing manner-of-motion elements within the data. First, 18 focal events were selected through LMA to concentrate the scope of data to be analyzed. Second, a layered structure for analysis and presentation of linguistically diverse and nonlinguistic data items was developed. This step included the specific appropriation of the term *token* for any expression – linguistic or nonlinguistic – that encoded semantic elements of LMA. Third, all tokens within data descriptions of focal events were identified. Fourth, the semantic content of each linguistic token was confirmed.

Eighteen focal events selected

Prior to data collection, three certified Laban Movement Analysts (CMAs), including the investigator, had independently viewed the stimulus vignettes and analyzed their content in terms of LMA. Two of these CMAs were native speakers of English and one a native speaker of Wu (Shanghainese). When these analyses were correlated, 17 dynamic moments emerged as being highly salient, by the fact that they were each identified by all three CMAs with consistently high agreement as to which LMA elements were present in each moment. An eighteenth consistently identified example was an extended sequence with no salient moments but very steady dynamics and many spatial references. These 18 focal events that then served as points for crosslinguistic comparisons were as follows:

1. Jane's run – Jane, a small child, runs crying from the playroom to the kitchen.
2. Jane's shove – Jane shoves her mother, Dora, in the hip.
3. Dora's tear-wipe – Dora wipes the tears off Jane's face.
4. Tina's wash – Tina, the maid, is leisurely washing the back door window.
5. Jane's approach – Jane runs up behind Tina.
6. Jane's surprise – Jane surprises Tina by flipping up her skirt.
7. Tina's toss – Tina tosses her sponge into a bucket.
8. Tina's scold – Tina scolds Jane.
9. Dora's scrub – Dora is vigorously scrubbing the back door window.
10. Mary's tiptoe – Mary, Dora's older daughter, sneaks up behind her.
11. Mary's prank – Mary startles Dora by pulling up her skirt.
12. Dora's throw – Dora angrily throws her sponge into the bucket.
13. Dora's reprimand – Dora reprimands Mary.
14. Jane's arch – Jane arches up during a piggyback ride on Dora's shoulders.
15. Keegan's entrance – A man, Keegan, walks deliberately into a kitchen.
16. Mary's red door – Mary grasps and leans on an open door, looking out.
17. Dora's big stretch – Dora stretches luxuriously while turning over in bed.
18. Keegan's steady state – Keegan climbs, descends a stepstool, opens and closes cabinets, kneels, and crawls, all with very little dynamic variation, during the process of moving a pack of beverages from one cupboard to another.

Layered structure of analysis and presentation developed

In order to clearly identify traditional morphosyntactic and semantic categories while consistently presenting the simultaneous and successively overlapping nature of multiple linguistic and meaningful nonlinguistic tokens across the three experimental languages, a layered template was developed. Line 1 is the main discourse line and primary timeline, containing mostly lexical items in sequence, including lexical words, morphemes, Signs, and classifiers. ASL Signs and classifiers appear in SMALL CAPS; Spanish items appear in *italics.* Line 1 is always set off by bold type so that the reader can easily locate it in relation to its many analytical elements.

Lines above line 1 are identified with capital letters. Traditional suprasegmental features (suprsg) including nonverbal sounds and ASL discourse markers, underlined, according to ASL practice, such as the agreement marker (Agrm), nod, which appears in this study, are shown on line A, directly above the discourse line. Nonlinguistic expressive movements (-ling), including gestures and constructed actions (CA), set off by |vertical lines|, are shown above line A on line B. LMA semantic features occurring in lines A and B tokens are shown directly under them.

Lines below line 1, identified with numbers, show its morphosyntactic, semantic, and LMA analysis. Line 2 contains traditional morphosyntactic coding (syn), including grammatical form, verb transitivity, person, number, gender, and case markings for linguistic tokens in both line A and line one. Line 3 contains traditional semantic analysis (sem) relating to predicates and their arguments. Predicates are classified into Vendler's four categories (1957) by their inherent temporal characteristics: (1) State (a static

situation), (2) Achievement (a punctual event), (3) Accomplishment (a process with a telic endpoint), and (4) Activity (a durational action). When an Activity becomes an Accomplishment through the the appearance of a locative in the clause, the change is indicated by the symbol (>). Arguments are identified according to thematic relations, as listed by Van Valin (2001, p. 31), and limited to Agent, Experiencer, Recipient, Goal, Source, Location, Theme, and Patient. Line 4 contains semantics according to LMA. Line 5 contains an English gloss in single quotes when needed for Spanish and ASL items.

Lines A, B, and 4 can be subdivided as needed. If parts of an integrated analytical term or phrase must be carried on to a lower line in order to facilitate readability in the layered analysis, a slash appears at the end of the first part of the term, as seen in line 4a of Example 4. If nothing occurs on a line, it is omitted. Whenever analytical identifications are so lengthy as to interfere with the vertical stacking of items that is so crucial to their being understood as simultaneous, the identifying elements are separated by a backslash (/) and carried over to a lower line as seen in Example 4, where the elements of the LMA A-punch, strong, direct, and quick, appear on the line under it. In Examples 4 and 5, layered lines are explicitly numbered, lettered, and identified by abbreviations to illustrate the analytical and presentational structure. In subsequent examples these identifications are assumed unless required for clarification.

4. English

B. (-ling) ..... Hand gesture
LMA..... awake: severe/direct.quick
A. (suprsg)..... loud
LMA..... strong
1. .....**The**.....**kid**..... **shoved** ..... **her**.....**in** .....**the**.....**hip**
2. (syn)...DEF.....N.....Vt.3sg.past.....PRO.3sg.f.Obj...P.....DEF.....N
3. (sem)..Agent.....Achievement...Patient.....Location
4a. LMA..... A-punch:/ strong.direct.quick
4b. LMA..... contact

5. ASL

B. (-ling).....Head gesture
LMA.....mobile mixed: free.quick
A. (suprsg)..... nod.....Voc: loud.[pəp˺]
LMA.....rhythm severe: strong.quick

1......**CL1**.....**CL2**
2. (syn)....PRO.3sg.Subj.....Agrm.....PRO.Vt+S.Adv/.....PRO..3sg.Obj
bump-into
3. .....Agent.....Achievement.....Patient
4a. LMA..... P-slash: strong.quick.free
4b. LMA..... contact
4c. LMA..... support: by feet
'She bumps into her'

Linguistic tokens identified and classified

After the data was collected, each word, phrase, and lexical Sign that coded manner-of-motion elements within subjects' descriptions of the eighteen focal events was identified as a linguistic token and classified morphosyntactically.

Semantic content of linguistic tokens confirmed

The semantic elements of each linguistic token were then confirmed in dictionaries (Gove, 1986; Smith, 1971; Sternberg, 1981), and refined through surveys and consultations with ordinary native speakers of each language, none of whom were also subjects in the experiment, with special attention to the LMA elements implied by each

qualitative term. Sample survey forms appear in Appendix G. For example, English and Spanish verbs 'run' and *correr* 'run' both mean "go, quickly, freely, supported by one's feet", whereas nouns "caution" and *cuidado* 'caution' both carry the LMA semantic elements of focus, sustainment, and control. Examples 6 and 7 illustrate how expressions such as these were analyzed in context. A chart of LMA semantics decomposed from linguistic tokens appears as Appendix H.

6. English

She	**ran**	**from**	**the**	**room**
PRO.Subj.3sg.f	V.3sg.past	P	DEF	N
Agent	Activity>Achievement mobile:mixed/ quick.free form: long support: by feet			Source

7. Spanish

Ella	***corre***	***a***	***su***	***mamá***
PRO.3sg.f Subj.	V.run.3sg.pres	P	PRO.3sg.poss	N.mom
Agent	Activity>Accomplishment mobile: mixed/ quick.free form: long support: by feet			Goal

'She runs to her mom'

The symbol ◆ is used in examples 8 – 10 and throughout this study to represent an empty space indexed as a previous reference or created by the negative space in mimetic representations such as hugging or carrying an object. Another convention used throughout and introduced in Example 8 is a placeholder shown as a pronoun in wavy brackets to represent a semantically pertinent argument whose anaphoric reference is too far removed in discourse for inclusion, such as the {He} at the beginning of Example 8.

8. English

	| hold ◆ | form: round support: on arms		
{He}	**cradles**	**it**	**cautiously**
PRO.3sg.m.Subj.	Vt.3sg.pres	PRO.3sg.n	Adv
Agent	Activity stable: mild/ light.indirect form: round support: on arms	Theme	V-wring or V-press focus.sustained.controlled

9. Spanish

			| hold ◆ | form: round support: on arms		
Con	***mucho***	***cuidado***	***saca***	***las***	***botellas***
P.with	Adj.much	N.caution	Vt.get.3sg.pres Agent/Achievement	DEF.pl.f	N.bottle.f.pl Theme
		V-wring or V-press/ focus.sustained./ controlled	contact: grasp supporting		form: long.pl

'With much caution, he gets the bottles'

10. ASL

B. (-ling)	|take-out ◆ | controlled Support: on hands	| hold ◆ | form: round but flattened support: on arms.body
1.		
2.	PRO.3sg.m.Subj./ Vt.3sg.pres/ PRO.Obj	PRO.3sg.m.Subj/ Vt.3sg.pres prog/ PRO.Obj
3.	Agent.Achievement.Theme	Agent.State.Theme

'He takes something out and holds it close'

In ASL Example 10, it is notable that nothing occurs in line one, the traditional discourse line.

Methods of Analysis

Crosslinguistic analysis of all tokens

Each linguistic, nonlinguistic, and controversially linguistic token obtained from subjects' descriptions was subjected to crosslinguistic analysis comparing the three experimental languages using traditional methods and to crossmodal analysis, that is analysis using LMA across the visual/kinesthetic and oral/aural modes of expression and perception, to compare linguistic and nonlinguistic tokens in English and Spanish with linguistic, nonlinguistic, and controversially linguistic ones in ASL.

Traditional linguistic analysis

In all three languages, each token was classified as being linguistic or nonlinguistic. In Spanish and English, "linguistic" equated to being a word or phrase. In ASL, "linguistic" was limited to two subcategories: (1) *Signs*, that is, the lexicalized shapes and movements of the hands that comprise the lexicon of that language, and (2) classifiers.

Morphosyntax

Linguistic tokens were further identified by their syntactic functions in context as intransitive verbs (V), transitive verbs (Vt), multi-word verbs with particles, such as "run into" (V+S; Vt+S), verb phrases (VP), adverbs (Adv), adjectives (Adj), nouns (N), noun phrases (NP), pronouns (PRO) prepositions (P), prepositional phrases (PP). Morphemes were also coded for person, number, gender, and case markings when present.

Linguistic semantics

As stated earlier, traditional semantic analysis addressed predicates and their arguments, with predicates being classified into four categories (Vendler, 1957) according to their inherent temporal characteristics: (1) State, (2) Achievement, (3) Accomplishment, and (4) Activity, and with arguments being identified according to Van Valin's list of thematic relations (2001, p. 31) limited to Agent, Experiencer, Recipient, Goal, Source, Location, Theme, and Patient.

Identification and description of nonlinguistic tokens

Nonlinguistic tokens, that is, expressive means of encoding semantic elements of LMA nonlinguistically, such as gestures, were also identified. Through extensive, detailed observation of the data tapes the investigator applied additional LMA to identify and analyze the semantic content of nonlinguistic and controversially linguistic tokens. Abundant in the ASL data, they include all traditionally nonlinguistic ASL elements:

1. constructed actions (CA)
2. facial gestures/expressions (FG)
3. head gestures (CG) from Latin *caput* "head"
4. non-lexicalized hand gestures (HG)
5. expressive sounds and sound qualities (Voc).

ASL is not silent. The onomatopoeic indications mentioned by Dudis (2004) often result in audible phonations, which was consistently the case in this experiment. This might be attributable to an intention to communicate with a hearing interlocutor, except for the fact that audible phonations are produced by native speakers in contexts

where no hearing people are involved, as can be witnessed at any deaf coffeehouse. It is also of note that of nine expressive audible phonations produced in the data, only one came from the bilingual hearing subject. Subject 3, the true native ASL speaker, was queried later in a context outside this experiment about the function of such sounds. He indicated that he is not aware of making sounds while signing. All of this may be evidence that such sounds, which so enrich the experience of ASL for the hearing, stem from the ability of signers to visually access their articulatory rather than their acoustic features, and to reproduce them, with their frequently resulting acoustic properties, from an integrating inner expressive impulse, that is, from LMA effort.

Nonverbal sounds are partially codable in LMA when, as in this thesis, the following associations are allowed. Strength is associated with loud amplitude and lightness with soft amplitude on the theory that loudness is produced through strong muscular engagement and softness with light muscular engagement. Strength is also associated with low pitch and lightness with high pitch, based on John Ohala's (1983) theory known as the "frequency code," which posits an interspecies association of low pitch with the large size and resultant potential strength of the vocalizer and high pitch with his/her weakness or delicacy. Indirectness is associated with labile pitch variation and directness with steady pitch through Frey's performative metaphor (2002, p. 31) where directness is achieved through a wind musician's centered, focused pitches and indirectness with playing all around a tonal center, or "noodling" as jazz musicians call it. Sustainment is an actual fact of vowel lengthening, and voiceless, unreleased stops are characterized by short decay, therefore perceived as quick.

Such vocal examples are rendered herein in standard International Phonetic Alphabet (IPA) transcription using symbols in brackets, including [:] for "long," [::] for "very long," (sustained), [ˈ] and [ˋ] for high and low tones in transcriptions, but the words "high" and "low" for pitch in general. The idiosyncratic symbols [↗↘] for " labile sequence of rising and falling pitches," and the words "loud" and "soft" for greater and lesser decibel levels (strong and light). An illustration containing the adverbial "conniving laugh," [hɛhɛhihihi::], appears in Example 11. This example was provided in the data by Subject 3.

11. ASL

	FG. "mischievous" stable: mild/ light.indirect HG:rub together awake: mild/ indirect.sustained		
	[hɛhɛhihihi::] Voc. soft.[↗↘] stable.mild/ light.indirect	CA |shoulders raised| form: rounded.twisted S-flick/ light.indirect.controlled	
GIRL		**CL1(2-HAND)**	**CL2**
sign		N.V.Adv	PRO.3sg.Obj
Agent		Activity S-flick/ light.indirect./ controlled form: long support: by tiptoe	Goal form: long

'The girl mischievously tiptoes toward her'

Linguistically controversial modes of coding in ASL

Linguistically controversial ASL classifiers were also analyzed through LMA, and counted as linguistic in generalized conclusions. Some ASL facial expressions also carry

conventionalized meaning, such as the action of raising the eyebrows, which is a discourse marker for indicating a question requiring an answer of "yes" or "no." Many others are identified by quasi-lexicalized ASL *monikers*, informal names, such as "carelessly," which is a facial gesture of pouted lips with a protruding tongue blade. Such quasi-lexical expressions were counted as nonlinguistic.

Classifier-like gestures ('CL') *in English and Spanish*

A number of nonlinguistic tokens very similar to ASL forms also appeared in the movement behavior of the English- and Spanish-speaking subjects, including gestures, constructed actions, and expressive nonverbal sounds and suprasegmental features. These were noted and crosslinguistically compared, with classifier-like gestures ('CL') identified separately. Figure 4 shows photographs of subjects representing each of the three languages describing the same moment in Focal Event 10, Mary's tiptoe. Each subject moved her hand, palm down with wiggling fingers in a curving horizontal path from her right side to the front of her body, in a mid-distant range, but with the ASL-signing subject's range bordering on far distance.

Analysis and commentary to accompany each photograph appears immediately afterward in Examples 12 – 14. It is notable that the shape of the path is included in the action of the 'CLs' in Examples 13 and 14 as well as in the ASL classifier in Example 12.

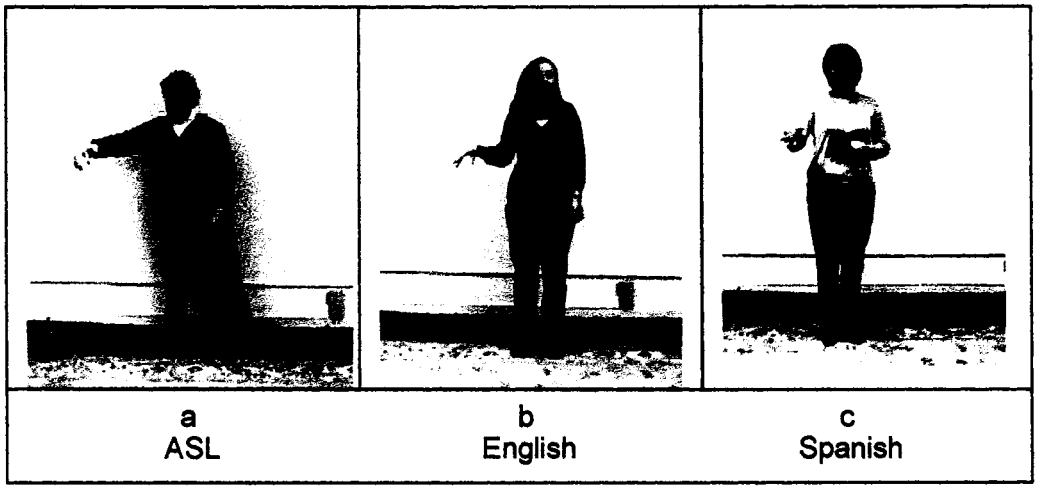


Figure 4. Focal Event 10. Mary's Tiptoe being described in 3 Languages

12. ASL (corresponding to Figure 4a)

CL1.BIPED.	**COMES.**	**AROUND**	◆
PRO.3sg.f.Obj	V.Move.3sg.pres	P	PRO.3sg.n.Obj
Agent	Activity		Location
	A-glide/		
	light.direct.sustained		
form: long	form: long		
support: by feet	support: by feet		

'She walks stealthily around the corner'

13. English (corresponding to Figure 4b)

	'CL'.....		
	light		
	form: long		
	support: by feet		
{She}	**sneaks**	**around**	**the corner**
PRO.3sg.f.Subj	V.3sg.pres	P	DEF N
Agent	Activity		Location
	V-wring		
	indirect.sustained.controlled		
	form: long		
	support: by feet		

14. Spanish (corresponding to Figure 4c)

'CL'
sustained
form: long
support: by feet

Viene	***la***	***niña***	***alrededor***	***de***	***la***	***casa***
V.come.3sg.pres	DEF.sg	N.girl	P+Partcl.around		DEF.sg.f	N.house
Activity		Agent				Source
		form: long				
		support: by feet				

'The girl comes around the house'

It is notable that the temporal quality of sustainment so clearly communicated through the 'CL' in Example 14 would not be acceptable as part of the English gloss within the tradition of linguistic research practice. In both English Example 13 and Spanish Example 14, the orientation and movement of the 'CL' not only reiterates the path, but also some of the linguistically expressed LMA. The wiggling finger movements of the true ASL classifier were also present, but handshapes were different: not isolated to the index and middle fingers in an inverted "V" -shape, required by ASL.

Laban Movement Analysis (LMA)

It is the ability of LMA to concretely observe not only static elements but also dynamic ones and to identify them separately from the contexts in which they appear, without leaping to culturally biased or projected interpretations, that promises their productive application in comparative semantics. Tokens carrying manner-of-motion information about the static LMA elements of form, contact, and support and about the dynamic elements of the entire effort system were analyzed through LMA.

LMA: Dynamic features in manner-of-motion

Laban's notion of effort (dynamic quality) is a complex system whereby the expressive effort factors of *force* (intentional use of physical power), *focus* (attention to the physical environment), *time* (attention to the timing of physical action), and *flow* (physical modulation of process) are interpreted as inner attitudes and impulses that give rise to dynamic physical qualities that are observable in movement.

Each effort factor includes two polar elements on a continuum of attitudinal leniency from severe to mild. This attitude, or concern, may be conscious or unconscious. Effort elements do not describe the content of an action, nor its quantitative limit, only how it is done.

It must always be remembered that LMA dynamics, while representing inner attitudes that may be interpreted in psychological terms, are made visible through observable physical action. For example, an indirect attitude can only be interpreted if multiple foci are indicated by body parts moving, however subtly, into different directions. Contrasting attitudes toward focus are illustrated in Figure 5, which shows ASL-signing Subject 3 in a direct attitude while describing Dora and Jane's mutual addressing from Stimulus Vignette 1 (Figure 5a) and in an indirect attitude describing Tina's throwing of the sponge from Stimulus Vignette 2 (Figure 5b). Figure 5b is also an example of form: twisted.

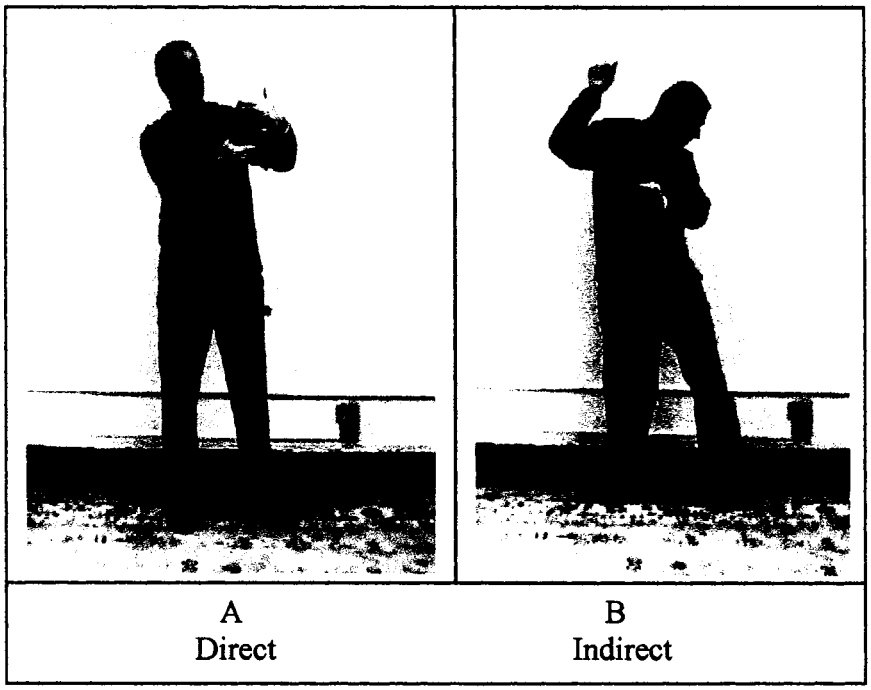


Figure 5. Contrasting Elements of the Focus Factor

Likewise, controlled flow can be interpreted only if observed through a subject's breathing patterns and/or his/her muscular engagement of antagonistic forces producing movement that is potentially reversible. It is difficult to illustrate contrasting flow elements in still pictures, but controlled flow easy to imagine in the careful walk of a person carrying a cup of scalding hot coffee filled to its uncovered brim. Controlled flow is often associated with holding one's breath, for both the mover and the observer. Free flow has the character of ease, release, and irreversibility. Figure 6 shows a moment of free flow that can be surmised from Dora's off-balance, irreversible posture as she runs in the back yard with Jane on her shoulders in a still photo from Stimulus Vignette 4.

Figure 6. Stimulus Vignette 4: Dora Running in Free Flow with Jane on her Shoulders

Contrasting attitudes toward the force factor, strong and light, were useful in comparing Focal Events 4 and 9, in which the identical action with the same intention of cleaning a window is performed differently by two different women. Tina washes it lightly, with a delicate touch, while Dora gives the window a good strong scrubbing.

The polar attitudes toward the factor of time, quick and sustained, can be imagined in two people on an unsuccessful blind date. By the clock, they experience the same amount of time, but their contrasting attitudes toward it are visible in their movements. One fidgets and grabs his/her coat, in a hurry to get it over with, while the other dawdles, sustaining his/her movements, hoping to prolong the time. The time factor figured prominently in subjects' comparative descriptions of Jane's quick versus Mary's slow paths in Focal Events 5 and 10.

Each effort factor with its polar elements is summarized in Figure 7, which also presents characteristic internal attitudes associated with each factor, as described by Bartenieff (1980, p. 53).

Severe element	**Effort Factor** (associated internal attitude)	Mild element
Strong	**Force** (intention)	Light
Direct	**Focus** (spatial attention)	Indirect
Quick	**Time** (temporal attention)	Sustained
Controlled	**Flow** (progression)	Free

Figure 7. LMA Effort Factors, Polar Elements, and Associated Internal Attitudes

Note. Each effort factor appears in boldface, with its polar elements along a continuum of leniency from severe to mild represented by a dotted bi-directional arrow line. The more severe elements are presented on the left, milder ones on the right. The general internal attitude associated with each factor is presented immediately under it (in parentheses).

While polar opposites rarely appear together at the same moment, it is also unusual for an element to appear in isolation. Configurations of three effort elements, *drives,* and of two effort elements *states,* enhance the sophistication of semantic interpretation. The terms state and drive are used in this thesis exclusively in these

particular LMA senses, with a few exceptions that are clear within their contexts. Whenever the term *State* is initially capitalized it refers to a predicate class. Otherwise it appears once in double quotes.

LMA drives: Configurations combining three dynamic factors

A motion event simultaneously combining three different factors produces an intensely dynamic situation known as a drive. There are four drives: *action drive,* combining the factors of force, focus, and time; *passion drive,* combining the factors of force, time, and flow; *vision drive*, combining the factors of focus, time, and flow; and *spell drive,* combining the factors of force, focus, and flow.

Each drive has eight potential configurations of elements known as basic effort actions. These are *float, punch, glide, slash, wring, tap, press,* and *flick.* The contrasting quality of each action varies appropriately by drive and is designated by different prefixes, "A-" for action drive, "V-" for vision drive, "P-" for passion drive, and "S-" for spell drive.

Action drive events combine force, focus, and time so saliently that flow – which is always present to some degree – becomes expressively irrelevant, merely serving to regulate the tension required to produce efficient performance of the action. The eight potential configurations of action drive are known as *A-float* (light, indirect, sustained), *A-punch* (strong, direct, quick), *A-glide* (light, direct, sustained), *A-slash* (strong, indirect, quick), *A-wring* (strong, indirect, sustained), *A-tap* (light, direct, quick), *A-press* (strong, direct, sustained), and *A-flick* (light, indirect, quick).

Five prominent A-drive actions occur within the eighteen focal events. (1) in Focal Event 2, Jane shoves her mother in the hip with a strong, direct, quick A-punch. These LMA semantics are also attributed to the English word "shove" and the Spanish word *empujar* "to push, shove," CMAs identified Focal Event 3, Dora's tear-wipe, in which Dora wipes the tears off Jane's face, as alternating between two direct, sustained actions, (2) a light A-glide, and (3) a strong A-press. Both (4) Jane's approach to Tina in Focal Event 5, and (5) her flip of Tina's skirt in Focal Event 6 were identified as light, direct, and quick A-taps.

In each of the three remaining drives, the flow factor is expressively foregrounded, replacing one of the action drive factors, and sometimes these drives are characterized by the this absent action factor, with passion drive being *spaceless,* that is, showing no attention to surroundings, vision drive being *weightless*, that is, showing no involvement with intentional force, and spell drive being *timeless*, that is, oblivious to any temporal limitations.

Mary's indirect, sustained, controlled, tiptoeing V-wring in Focal Event 10 reveals her preoccupation with the controlled manner of the approach itself rather than her intention in approaching, in contrast to Jane's lighthearted action-oriented approach in Focal Event 5 where she hurries along in anticipation of the prank she has in mind. Vision drive is without weight, without apparent self-sensing, therefore sometimes also called "egoless." People functioning through its dynamics are not driven to accomplish their intentions forcefully, not even with light force, but are more interested in a clear and sensitive articulation of structures in space and time. In an A-press one continually

asserts his/her will in strong, direct action over a period of time – either grossly, as when concentrating the whole body's strength into one direction to move a grand piano, or more subtly, as when one politician buttonholes another in the hallway and the addressee feels the heavy hand, the powerful voice, and the piercing eye as one very extended moment. In comparison, a person performing a visionary V-press (direct, sustained, and controlled) maintains consistent attention toward a single process over time, but without any investment in the outcome. Imagine a bystander in the same piano-moving scene described above who agrees to hold a heavy curtain out of the way of the piano mover in a direct, sustained, controlled V-press. Another example would feature a hypothetical high-school debate team whose members are required to argue both sides of the above-mentioned crucial vote. The sustained focus and control would come through in their gestures, but the built-in neutrality of conviction would also neutralize power in their voices and postures. That is, unless one of them really does care about the issue, in which case he/she would then probably shift into action drive, revealing both strength and potential weakness of personal investment in perceivable postural action.

Passion drive is not outwardly focused. It is more concerned with inner sensation than awareness of and relationship to others and the environment. In an A-float, someone might be indulging multi-focused attention with a light touch in a leisurely fashion, like the hostess of an genteel garden party, deftly depositing an empty champagne glass on a tray with a discreet signal to the waiter, while solicitously shaking the hand of an elderly congresswoman and scanning the terrace for new arrivals. In comparison, a guest at this party might be strolling along in a blissful P-float, hand-in-hand with a sweetheart he only

senses through touch, motion, and scent, tilting his head this way and that to enjoy the perfume, the warm breeze, the sun, and the music. A fisherman might engage all the muscles of his torso and limbs to wield his lively multi-directed load while hauling a net full of large mackerel onto the deck of a boat in a strong, indirect, sustained A-wring, but later, in the town, we might imagine him in a fit of exuberance or temper, breaking a bottle with a sweeping P-slash (strong, quick, free), without concern for his effect on everything around him.

There are three examples of passion drive within the eighteen focal events. (1) In Focal Event 4, Tina's window washing does not seem to involve much attention to the window, her leisurely motion being identified by CMAs as a light, sustained, free P-float. (2) Another P-float is seen in Jane's ecstatic back-arching moment of exultation atop her mother's shoulders in Focal Event 14. (3) Dora's big stretch while turning over in bed in Focal Event 17 seems to echo her daughter's pleasure in movement with a luxurious strong, sustained, free P-wring.

Stimulus Vignettes 2 and 3 (in which Focal Events 4 – 13 occur) provided interesting contrasts in that the spatial situations and actions were the same, but the characters and their dynamics very different. Both stimulus vignettes show a woman washing a back door window, then a girl coming around the corner to surprise the woman by flipping up her skirt. After that the woman throws her sponge toward a bucket and turns around to scold the girl. Dora's P-slash, an angry moment of strong, quick, free intemperateness, completely careless of her surroundings, carries a different content than

Tina's toss in Focal Event 7, where she tosses her sponge into the bucket with the direct clarity and absence of impulsiveness found in a strong, direct, free S-press.

Tina continues in timeless spell drive to scold her prankster Jane with an authoritative but reassuring light, direct, free S-glide, whereas Dora reprimands Mary in severe remote state, frightening her as well as the subjects of this experiment with a movement growing in severity with increasingly direct focus and controlled flow.

Spell drive is timeless, creating a hypnotic feeling in both its doers and observers. People intensely involved in its dynamics of force, space, and flow are free from time's deadlines but also from time's leisurely indulgence. This drive is characterized by "goingness," with attention to the quality of the going. Both momentary and endless events simply exist with equal value in spell drive. Dora's scrubbing of the window in Focal Event 9 involves reiterated S-presses. She is strongly focused on her task, unconcerned with how long it will take. The classic example of spell drive is the hypnotist, who carefully modulates strength, lightness, directness, and indirectness through vocal and bodily actions, now shifting forward to deliver a focused deep-toned instruction, then relaxing back, circling his head upward to lightly dispense suggestions that seem to come from everywhere and nowhere. All this is performed at an even-flowing tempo, often with the aid of a spinning prop to mimic the aspect of evenly ongoing motion.

Human motion that appears "robotic" or in "slow motion" is probably being done in spell drive, or one of its components, remote (focus and flow) state. This phenomenon figured usefully in the analysis of Focal Event 18. Long distance runners may maintain an

S-press (strong, direct, and free) or drop into one of the three states included within this drive: remote, dream, and stable. Stable state (force and focus) is likely to take over for a runner who has regulated his/her optimum pace. He/she may shift into remote state (focus and flow) if obstacles requiring nimble adjustments appear, or into dream state (force and flow) when the race is on a smooth, predictable track and he/or she must optimize strength and precision in each stride in order to get farther ahead, or lightness and precision in order to take care of an injured joint.

A comparison of the components of the eight unique configurations each drive is illustrated in Figure 8.

	Action Drive *Flow is backgrounded*	Passion Drive *No attention to others or environment*	Vision Drive *No personal intention or goal*	Spell Drive *No concern for time or timing*
Float	Light Indirect Sustained	Light Sustained Free	Indirect Sustained Free	Light Indirect Free
Punch	Strong Direct Quick	Strong Quick Controlled	Direct Quick Controlled	Strong Direct Controlled
Glide	Light Direct Sustained	Light Sustained Controlled	Direct Sustained Free	Light Direct Free
Slash	Strong Indirect Quick	Strong Quick Free	Indirect Quick Controlled	Strong Indirect Controlled
Wring	Strong Indirect Sustained	Strong Sustained Free	Indirect Sustained Controlled	Strong Indirect Free
Tap	Light Direct Quick	Light Quick Controlled	Direct Quick Free	Light Direct Controlled
Press	Strong Direct Sustained	Strong Sustained Controlled	Direct Sustained Controlled	Strong Direct Free
Flick	Light Indirect Quick	Light Quick Free	Indirect Quick Free	Light Indirect Controlled

Figure 8. Effort Components of the 8 Unique Configurations in each LMA Drive

LMA states: Configurations combining two dynamic factors

When dynamic elements involve a combination of two different simultaneously occurring effort factors, a certain mood known as a state results. There are six states: *awake* (focus and time), *dream* (time and flow), *rhythm* (force and time), *remote* (focus and flow), *stable* (force and focus), and *mobile* (time and flow). Each state includes four potential dynamic configurations of two elements. When states combine two severe elements, they are coded as severe; when they combine two mild elements, they are coded as mild; when they combine one severe and one mild element, and they are coded as mixed.

The nature of each one of these twenty-four unique two-element state configurations is addressed by Newlove (1993, pp. 128-138) through the simple action of reaching forward to take hold of the hand of a friend. A chart summarizing the potential configurations of LMA states appears as Figure 9. This author's chart was inspired by Newlove and uses her action example, but modifies the majority of her vocabulary through original additions and substitutions.

DREAM STATE: Force & Flow			
Strong/Controlled	Strong/Free	Light/Controlled	Light/Free
assertively with restraint	*boldly with abandonment*	*gently & carefully*	*gently without reservation*
AWAKE STATE: Focus & Time			
Direct/Quick	Direct/Sustained	Indirect/Quick	Indirect/Sustained
confidently & Impulsively	*considerately*	*furtively with ambivalence or guile*	*doubtfully*
MOBILE STATE: Time & Flow			
Quick/Controlled	Quick/Free	Sustained/Controlled	Sustained/Free
abruptly & spasmodically	*abruptly with ease & liveliness*	*slowly & spasmodically*	*slowly & easily*
STABLE STATE: Force & Focus			
Strong/Direct	Strong/Indirect	Light/Direct	Light/Indirect
resolutely	*resolutely but flexibly*	*sensitively & receptively*	*sensitively & flexibly*
REMOTE STATE: Focus & Flow			
Direct/Controlled	Direct/Free	Indirect/Controlled	Indirect/Free
straightforwardly with restraint	*straightforwardly without restraint*	*warily*	*unreservedly but with preoccupation*
RHYTHM STATE: Force & Time			
Strong/Quick	Strong/Sustained	Light/Quick	Light/Sustained
with concern or alarm	*with concern & deliberation*	*sensitively and immediately*	*sensitively and deliberately*

Figure 9. Moods in Hand-grasping to Illustrate Configurations in LMA Dynamic States

Note. Figure 9 shows the 6 LMA states in **BOLD CAPS** with the 2 factors that comprise each in **Bold** after a colon. The 4 potential configurations of each state, capitalized and separated by a slash, appear in a row below. The severe configuration of each state appears on the left, the mild one on the right, and the 2 mixed ones in the middle. Adverbial characterizations of each mood appear italicized in the row under each configuration.

States constitute a significant portion of the LMA and linguistic analysis of the 18 focal events. Focal Event 1, Jane's run, in which the young child Jane runs crying from the playroom into the kitchen, was identified by CMAs as an action in mixed mobile state: quick and free. These also coincide with the LMA semantics ascribed to the English word "run" and the Spanish word *correr* "to run." Focal Event 16, Mary's red door, in which the pre-teenage girl Mary leans on a door jamb looking out the door, was identified as a static situation in mixed awake state: sustained and direct. Focal Event 18, Keegan's steady state, was identified as a series of actions using all four possible configurations of remote state and no other dynamics, but with the majority of its actions in mixed remote state: direct and free.

Awake state, mentioned above in Mary's look out the red door, is weightless and relatively flowless. It combines focus and time in four potential manifestations: direct and quick, indirect and quick, direct and sustained, and indirect and sustained. The opposite of awake state is dream state. Dream state combines force and flow, which can occur in any of four spaceless, timeless, dreamy manifestations: strong and controlled, light and controlled, strong and free, and light and free. No moments of dream state were identified by CMAs within the 18 focal events. Dream state actions often reveal self-focused sensation and intention, as when unconsciously brushing one's hair out of one's eyes. Imagine, for example, the contrasting reactions of the sleeping parents of a newborn to a 6:00 a.m. alarm: the exhausted mother might eventually bang it off with a strong, free, mixed dream state, flailing action, while her anxious husband might pop immediately into severe awake state to poke the switch with a simultaneous direct, quick look at the time.

Mobile state combines time and flow, producing four potential manifestations that each facilitate well-timed change: quick and controlled, sustained and controlled, quick and free, and sustained and free. Jane's tearful run in Focal Event 1 contrasts the unrestrained self-concerned hurrying of quick, free, mixed mobile state in reaction to some injury with her more focused, intentional, mischievous, A-tap run in Focal Event 2. Mobile state especially provides transitions between the two drives that it participates in, passion drive and vision drive, as, for example, when one is struggling to untie a knot, then – eventually or suddenly – sees the structure of the entanglement and is able to resolve it without exertion. The opposite of mobile state is stable state, which combines force and focus in four potential configurations: strong and direct, strong and indirect, light and direct, and light and indirect. The mood of stable state is dependability. Think of a pioneer woman "standing her ground" strongly planted on both feet, a baby on her shoulder and a rifle in her hand as she stares a rustler down in strong, direct, severe stable state. The light and direct elements within Tina's spell drive actions in Focal Events 5 – 8 are what lends the aura of stability to her character. Another example is that of a wise teacher in a light, indirect, mild stable state configuration. Being secure in his knowledge of myriad possibilities, he is able to pay simultaneous attention to needed clarifications in a student's proposition, to the multiple references he is reaching for in the bookcase and the desk drawer, and to the student waiting just outside the partially open door, all with such a light, sure attitude that the first student experiences a secure feeling of trust and encouragement.

Remote state combines space and flow factors to produce an overall mood of detachment in four potential manifestations comprising direct and controlled, indirect and controlled, direct and free, and indirect and free. A person in remote state is devoid of intention and decision and his/her actions reveal no concern for what, if, or when anything happens. People in remote state seem somehow removed from social interaction, aloof, very formal, or preoccupied. They perform tasks adequately, with spatial precision, but nothing more. Several subjects were mystified and exasperated by Keegan's extended remote state phrase in Focal Event 18, calling it "odd" and "robotic." Others simply ignored it. Extreme severe remote state, such as Dora's direct, controlled reprimand in Focal Event 13, which seems a bit like a mad scientist in a horror movie, can be scary.

In classless societies a person with this behavior often appears somehow dehumanized, such as a patient on powerful antipsychotic drugs, a person near total exhaustion, or a very poor actor, simply "going through the motions" of mundane actions such as eating, getting dressed, and speaking, without any hint of personality. A comic stereotype of remote state is found in the proper English butler, "Jeeves," a character in the novels and stories of P.G. Wodehouse. His frozen expression and controlled precision set up situations for delight when he breaks his unruffled remote state facade with a light, indirect, twinkling, mild stable state aside or a strong, quick, severe dream state outburst of temper. On the heavier side, elite members of many cultures assume that servants and underlings will "disappear" in their presence, and countless stories of prison and social repression are told where inmates and survivors credit their survival to

years of living in remote state, never showing strength or levity, never making independent decisions, virtually invisible to their warders and employers.

Rhythm State, the opposite of remote state, is all about personality. Its four force and time configurations of strong and quick, strong and sustained, light and quick, and light and sustained produce an overall feeling of close proximity, that is, the perceiver feels close to the person perceived. This is why it is sometimes called "near state." Being close to someone entirely concerned with his/her own intentions and timing feels quite intimate, moreover, this feeling projects strongly over distance. Someone in rhythm state is oblivious to surroundings, takes the quality of his/her precision for granted, and seems too ebullient to be accused of mere selfishness. The severe manner of Mary's strong, quick, rhythm state prank in Focal Event 11, somehow immature and devoid of the civilizing effect of interpersonal focus, may be responsible for her mother's extreme reactions in Focal Events 12 and 13. "Larger-than-life performers," such as rock stars, typically balance their performances between completely invested action drive configurations and potent exhibitions of "public privacy" in passion drive, never leaving rhythm state, which is the common link and transition between action and passion drives. The four potential manifestations of rhythm state are strong and quick, strong and sustained, light and quick, and light and sustained.

Each drive includes three potential states within itself, one of which is shared with each other drive, serving as a common bond and transition between them in the process of dynamic action. These theoretical relationships among states and drives are illustrated in Figure 10.

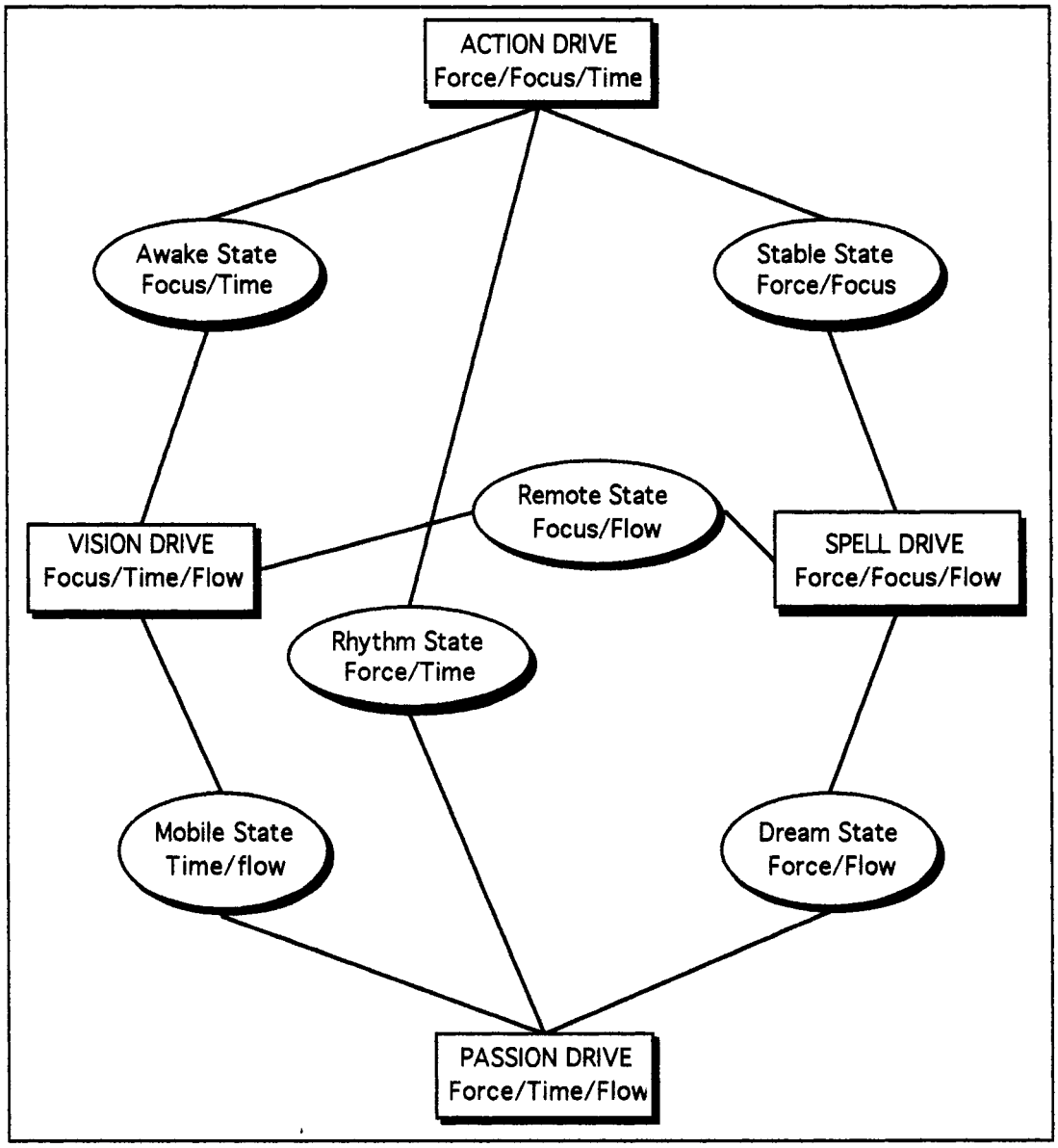


Figure 10. Theoretical Relationships among LMA States and Drives

Note. Figure 10 shows the 4 LMA effort drives in square frames connected by lines to the 3 states that they contain in oval frames. States in intermediate positions between drives also function as transitions between them in the course of action.

LMA: Static features in manner-of-motion

Static spatial LMA terms applied to data analysis were limited to form, contact, and support. Form identifies the static shape of an entity: (1) *long,* such as a pencil or human being, (2) *flat,* such as a door or horizontal surface, (3) *round,* such as a ball or the shape of one's arms in a hug, and (4) *twisted,* such as a screw or a posture with one's upper body turned. Contact means touch. Support describes a particular object-relationship relative to gravity. In LMA, the point of contact of the supported entity is distinguished from the supporting entity itself through the use of *by* and *on.* Shakespeare provides a classic example: Juliet waited on the balcony, supported *by* her feet, *on* the floor, while Romeo climbed up, supported *by* his hands *on* the flowering vine. In Focal Event 14, the piggyback ride seen above in Figure 6, Jane is supported by her hips on Dora's shoulders.

Limitation of LMA in analysis

The entire LMA system of effort was used to present examples, but only the configurations appearing in the 18 focal events were used in systematic comparisons. References to LMA features occurring on separate expressions within the same clause were listed separately, as in Example 15, where the adverb "rapidly," counts as one token encoding two features, quick and free, and the second token, the verb "skips," counts as one token encoding five LMA features including two static features, (1) a long human form, and (2) supported by her feet, and one dynamic configuration, a passion drive P-flick, comprising the effort elements of (3) light, (4) quick, and (c) free. The prepositional phrase "around the corner," encodes path information outside the scope of this thesis.

Example 15 is a description of Focal Event 5, Jane's approach, which features dynamics that contrast greatly with Mary's tiptoe, described in examples 12 – 14.

15. English

The	**little**	**girl**	**very**	**rapidly**	**skips**	**around the corner**
DEF	Adj	N	Adv	Adv	V.3sg.pres	PP
Agent					Activity	Location
				mobile: mixed/ quick.free	P-flick/ light.quick.free form: long support: by feet	

Nonlinguistic factors in English and Spanish

Nonlinguistic tokens for English and Spanish comprised six categories as follows:

1. 'CL' – classifier-like hand gestures
2. CA – constructed actions
3. Voc – expressive vocal qualities and nonlexical sounds

Gestures, including

4. FG – facial expressions
5. CG – head gestures
6. HG – ordinary hand gestures

Method of token analysis

Sample data coding sheets illustrating the method by which tokens of expression of LMA semantics were analyzed appear as Figures 11, 12, and 13. In such coding sheets, lexemes are cited in the forms in which they occur in the data. In Figure 11, for example, the transitive verb "to startle" is presented as it appeared in context: Vt.3sg.past.

Focal Event 11. Mary's prank					Language: English						
Mary startles Dora by pulling up her skirt.											
Effort: Rhythm State (severe: Strong/Quick) Contact:Grasp											
A	B LMA Elements			C Linguistic tokens		D Nonlinguistic tokens					
Subject & Token #	Strong	Quick	grasp	lexeme	morpho syntax	'CL'	Gesture FG	Gesture CG	Gesture HG	CA	Voc
Sub 1											
#1	+	+		startled	Vt						
#2		+							√		
#3		+	+							√	
Sub 2											
#1	+		+	pulled on	Vt+S						
#2		+		playful	Adj						
#3	+		+	pulls up	Vt+S						
Sub 3											
#1	+	+								√	
Totals: Tok-ens 7	**LMA elements 12**			**linguistic tokens 4**		**nonlinguistic tokens 3**					

Figure 11. Sample Data Analysis Coding Sheet: Focal Event 11. English

Note. Figure 11 shows analysis of descriptions by the 3 English-speaking subjects of Focal Event 11, Mary's prank, in which Mary startles Dora by pulling up her skirt. Column A identifies the subject (Sub) and the number (#) of tokens he/she supplied. Column B shows LMA Elements encoded within a token identified by plus signs (+). Columns C and D identify the mode by which the token was encoded, with linguistic tokens in Column C presented in the form in which they occurred in the context of the description, followed by morphosyntactic analysis, and occurances of nonlinguistic tokens identified in column D by a checkmark (√) denoting its specific form: 'CL': classifier-like gesture, FG: facial gesture, CG: head gesture, HG: hand gesture, CA: constructed action, and Voc: nonverbal or suprasegmental sound.

Focal Event 11. Mary's prank Mary startles Dora by pulling up her skirt. Effort: Rhythm State (severe: Strong/Quick) Contact:Grasp					Language: Spanish					
A	B LMA elements			C Linguistic tokens	D Nonlinguistic tokens					
Subject & Token #	Strong	Quick	grasp	lexeme 'English gloss' morphosyntax	'CL'	Gesture FG	 CG	 HG	CA	Voc
Sub1 #1	+	+		*asusta* 'he/she startles' Vt.3sg.pres						
#2	+	+	+	*jalandole* 'pulling it' Vt.partcpl+ PRO.3sg.n						
Sub 2 #1	+	+		*asusta* 'he/she startles' Vt.3sg.pres						
#2	+	+	+					√		
Sub 3 #1			+	*levantándole* 'lifting it' Vt.partcpl+ PRO.3sg.n						
#2			+	*levantarle* 'to lift it' Vt.inf+PRO.3sg.n						
Totals: Tok-ens 6	**LMA elements 12**			**linguistic tokens 5**	**nonlinguistic tokens 1**					

Figure 12. Sample Data Analysis Coding Sheet: Focal Event 11. Spanish

Note. Figure 12 shows analysis of descriptions by the 3 Spanish-speaking subjects of Focal Event 11, Mary's prank. Column A identifies the subject (Sub) and the number (#) of tokens he/she supplied. Column B shows LMA Elements within a token identified by plus signs (+). Columns C and D identify the mode by which the token was encoded, with linguistic tokens in Column C presented italicized in the form in which they occurred in the description, followed by the English gloss in single quotes, followed by morphosyntactic analysis. Nonlinguistic tokens of are identified in column D by a checkmark (√) denoting specific form: 'CL': classifier-like gesture, FG: facial gesture, CG: head gesture, HG: hand gesture, CA: constructed action, and Voc: nonverbal or suprasegmental sound.

Focal Event 11. Mary's prank										Language: ASL
Mary startles Dora by pulling up her skirt.										
Effort: Rhythm State (severe: Strong/Quick) Contact:Grasp										
A	B LMA elements			C Linguistic tokens		D Nonlinguistic tokens				
Subject & Token #	Strong	Quick	grasp	sign	CL	Gesture			CA	Voc
						FG moniker	C G	H G		
Sub 1										
#1	+	+	+						√	
#2	+	+								[pəp˺]
Sub 2										
#1	+	+	+						√	
#2		+				surprise				
Sub 3										
#1	+	+	+						√	
#2	+	+								[pəp˺]
Totals: Tok-ens 6	**LMA elements 14**			**linguistic tokens 0**		**nonlinguistic tokens 6**				

Figure13. Sample Data Analysis Coding Sheet: Focal Event 11. ASL

Note. Figure 13 shows analysis of descriptions by the 3 ASL-signing subjects of Focal Event 11, Mary's prank, in which Mary startles Dora by pulling up her skirt. Column A identifies the subject (Sub) and the number (#) of tokens he/she supplied. Column B shows LMA Elements within a token identified by plus signs (+). Columns C and D identify the mode by which the token was encoded, with linguistic tokens in Column C, subdivided into signs and classifiers (CL). In this particular example, there are no linguistic tokens, but signs would have appeared in this column in SMALL CAPS. Occurances of nonlinguistic tokens are identified in column D by a checkmark (√) denoting its specific form: FG: facial gesture, CG: head gesture, HG: hand gesture, CA: constructed action, and Voc: nonverbal or suprasegmental sound.

The linguistic versus nonlinguistic English coding pattern shown in Figure 11 is typical, but that of Figure 12 is atypical for Spanish in being so heavily linguistic. Linguistic encoding of motion description is typically sparse in ASL, but Figure 13, with no linguistic tokens, is an extreme case.

A full analysis of all tokens pertaining to Focal Events 1 – 17 appears in 51 separate similar expanded tables as Appendix K. Focal Event 18 required an alternative analytical method, discussed in Chapter 4 under a separate heading.

CHAPTER 4

RESULTS AND DISCUSSION

General Results

This is the first study to pay careful attention to the qualitative dynamics expressed in descriptions of human motion. It has shown through LMA that the content expressed by English speakers, Spanish speakers, and ASL signers is very similar. A consistently strong tendency to identify and communicate dynamic elements one way or another was seen crosslinguistically.

The general purpose of the study was accomplished in applying LMA to the semantics of manner-of-motion as they were expressed linguistically and in physical actions of the whole body and its parts to compare descriptions of motion events in the three typologically diverse languages of English, Spanish and ASL. Meaningful nonlinguistic expressions were found in descriptions of motion events by English and Spanish speakers as well as ASL signers.

A demonstration of usefulness of LMA in semantic analysis was supplied by its productive application in the framework of this crosslinguistic, crosstypological experiment, where it served to expand the category of qualitative manner-of-motion elements and to differentiate such elements more equitably and accurately. Crosslinguistic agreement as to which elements of dynamic quality were present in focal events analyzed led to the conclusion that Laban Movement Analysis can be the remedy for Slobin's complaint (2004) that manner-of-motion is "ill-defined" (p. 223).

Effect of Different Instructions in Part A and Part B of the Experiment

Any nonlinguistic or linguistic expression that encoded one or more of the 11 predefined LMA elements selected for this study (strong, light, direct, indirect, quick, sustained, controlled, free, form, contact, and support) was counted as a token. There was no significant difference in number or complexity of tokens derived from the experiment Part A, where subjects were asked to produce descriptions of "what happened," versus Part B, where they were asked to emphasize "*how* the people did what they did." Exactly 50% each of the tokens supplied by Spanish speakers and ASL signers were obtained from each experiment, with Experiment B yielding 52% of the tokens from English speakers. This indicates that identification and expression dynamic as well as static quality was natural to the subjects, whenever was present in a visual stimulus.

Linguistic and Nonlinguistic Tokens

All nine subjects used both linguistic and nonlinguistic tokens to communicate their observations. They supplied 555 tokens in descriptions of 18 focal events. English-speaking subjects provided the most tokens (218), with ASL signers providing somewhat fewer (191). Spanish-speaking subjects supplied the least tokens (146). This correlated with the fact that they also simply used fewer total words than English speakers did and fewer expressive movements than ASL signers did.

Linguistic tokens generally outnumbered nonlinguistic ones, comprising 59% of the tokens provided by all nine subjects. Language-specific results varied unequally on a continuum. The percentage of linguistic versus nonlinguistic tokens provided in each

language was 71% in English, 66% in Spanish, and 23% in ASL. Table 1 shows numerical distributions of linguistic and nonlinguistic tokens in the three experimental languages.

Table 1

Distribution of Linguistic and Nonlinguistic Tokens by Language

	Tokens		
	Linguistic	Nonlinguistic	Total
English	155	63	218
Spanish	96	50	146
ASL	74	117	191

A factor affecting the validity of generalizations based on the data in Table 1 is that the temporal overlapping of tokens was not tracked and therefore, regrettably, did not figure into the analysis. In presenting these generalizations it must also be emphasized that many of the forms designated as nonlinguistic in the analysis of the ASL data are controversially so. The apparent tendency of ASL-signing subjects to use less linguistic tokens than nonlinguistic ones and less linguistic tokens than the other subjects may result more from the arbitrary limitation of the category "linguistic" to Signs and classifiers than with lexicalization patterns of this language. It could also be seen as evidence favoring a broader definition of what is linguistic.

English- and Spanish-speaking subjects provided more linguistic than nonlinguistic tokens, while ASL signers provided fewer. Examples 16-21 show typical and atypical

encodings for English and Spanish. Example 22 shows typical encoding for ASL-signing subjects. No atypical exclusively linguistic examples were found in the ASL data.

English speakers tended to favor linguistic description over nonlinguistic, as expected and as seen in Example 16.

16. English

{she}			**very**	**gently**		**smoothes**		
PRO.3sg.f.Subj			Adv	Adv		Vt.3sg.pres		
Agent						Accomplishment		
				P-float		A-glide/		
				light.sustained.free		light.direct.sustained		
						contact: sliding		
the	**hair**	**and**	**the**	**tears**	**off**	**the**	**little**	**girl**
DEF	N	Conj	DEF	N+pl	Part	DEF	Adj	N
	Theme			Theme				Patient

Less typical English examples expressing movement quality simultaneously with lexical, gestural, and vocal forms include examples 4, 6, 8, 13, 15 (Chapter 3), and 17 below. No examples were found where quality was expressed entirely nonlinguistically in English.

17. English

	|CA.embrace.lift ◆	
	rhythm: mild/	
	light.sustained	
	form: round	
	support: on arms	
She	**hugs**	**her**
PRO.3sg.f.Subj	Vt.3sg.pres	PRO.3sg.f.Obj
Agent	Activity	Patient
	dream: force.flow	
	form: round	

Spanish speakers showed a slight tendency toward loading more dynamic features on nonlinguistic expressions, often anchored to a simultaneous motion verb. Examples 9

and 14 (Chapter 3), and 18-20 show the typical Spanish interweaving of linguistic and nonlinguistic modes to express dynamic and static qualities, while Example 21 shows a contrasting exclusively linguistic mode. In Example 18, the subject focuses on a sudden, powerful downward-and-upward motion of both her fists in the hand gesture analyzed as a grasping A-punch.

18. Spanish

	HG A-punch/ strong.direct.quick contact: grasp ◆		
Le	***jala***	***la***	***falda***
PRO.3sg.n.Obj. (Theme)	Vt.pull.3sg.pres Activity.Agent stable: severe/ strong.direct contact: grasp	DEF.sg.f	N.skirt.f Theme

'She pulls strongly and quickly on the skirt'

19. Spanish

		|grasps sides of ◆, places on self-shoulders| Support: by hips; on shoulders		
La	***niña***	***está***	***arriba***	***de***
DEF.sg.f	N.girl Experiencer	V.COP.3sg.pres State	Adv.above + Location	P

			HG S-Float/ Light.Indirect.Free Form: twisted	
su	***mamá,***	***volteando***	***y***	***volteando***
PRO.3sg.n.poss	N.mom.Obj Location	V.turn.partcpl Activity	Conj	V.turn.partcpl Activity

'The girl is on her mom's shoulders, turning and turning'

20. Spanish

	CA |turn| awake: severe/ direct.quick		
Se	***voltea***	***muy***	***enojada***
PRO.3sg.n.reflex. Experiencer	V.revolve.reflex.3sg.pres Achievement	Adv.very	Adj.angry dream/ strong.flow

'She turns (herself) very angry/angrily'

21. Spanish

Sorprender	***a***	***la***	***señora***
Vt.surprise.inf awake/ force.quick	P.oblig	DEF.sg.f	N.woman

tratándose	***de***	***esconder***
V.try.partcpl+rflx +	part	V.hide.inf
Acccomplishment+agent indirect		

'to surprise the woman, {she} tries to hide herself"

As seen in Examples 3 (Chapter 1), 5 and 11 (Chapter 3), and 22 below, types of expression interweave constantly in the stream of ASL discourse. No exclusively linguistic ASL expressions were found in the data.

22. ASL

		CG.tilt R-L FG.frown Voc."sobbing"		
	HG.height: short		nod	
GIRL		**CRY**		**CL1**
N Agent	Adj	V Activity dream state/ fluctuating force & flow	Agreement marker	PRO
			FG. "puffy cheeks" mobile: mixed/ quick.free Voc. "buzz" [pəB::].	
	nod			
MOTHER		**CL2**	**CL1>BIPED**	
N	Agrm	PRO Goal	N/V/Adv (motion toward) V-tap/ quick.direct.free form: long support: by feet	

'A little girl runs crying toward her mother'

Findings for Specific Hypotheses

Hypothesis 1. (After Talmy, 2000b)

English speakers will encode linguistic expressions of manner-of-motion on verbs more often than Spanish speakers will.

Findings for Hypothesis 1

This hypothesis was confirmed, but not to the degree expected. Both English-speaking and Spanish-speaking subjects coded LMA elements (manner-of-motion) on finite verbs more than on any other grammatical form, with adverbs being their second

choice. Of 155 English linguistic tokens, 52% were finite verbs and 21% were adverbs. Of 96 Spanish linguistic tokens, 45% were finite verbs and 21% were adverbs. Of these English verbs, 45% were verb plus satellite constructions, containing dynamic as well as directional information. Table 2 shows the number of English and Spanish linguistic tokens of manner-of-motion distributed by grammatical category.

Table 2

English and Spanish Linguistic Tokens by Grammatical Category

Grammatical category	English	Spanish
Verb	80	43
Infinitive	1	9
Adverb	33	20
Noun/noun phrase	9	6
Adjective	28	10
Prepositional phrase	4	8
Total	155	96

The pattern of encoding on verbs was expected in English, but not in Spanish. The surprise is almost certainly a result of the decision to follow Whitley's interpretation of copula plus participle/gerund being a progressive construction (2002, p. 313) throughout this thesis, because it is more parallel to the interpretation of English auxiliary plus participle constructions. If these participles had been analyzed as adverbs, then the

conclusion would have been that 35% of Spanish manner expressions are adverbs. This would have been more in line with Slobin's findings of approximately 16% manner encodings on verbs (2005b, p. 314).

One third of Spanish verbs used the copula *estár* "to be," with dynamic elements occurring as expected on an obligatory participle, as shown in Example 16. Example 17 shows a comparative auxiliary plus participle construction in English.

Examples 23 and 24 illustrate the two well-known patterns of auxiliary (AUX) plus participle in English and copula plus participle in Spanish to produce the progressive aspect.

23. Spanish

La	***niná***	***está***		***llorando***
DEF.f	N.child.f	COP.3sg.	+	V.partcpl.cry
	Agent	Activity----------		
				dream/
				fluctuating force.flow

'The little girl is crying'

24. English

They	**are**	**laughing**	**and**	**playing**	**on the grass**
PRO.3pl.Subj	AUX	V.partcpl/ prog	Conj	V.partcpl/ prog	PP
Experiencers		Activity		Activity	Location
		passion drive/ force.time.flow		flick/ or tap/ (any drive)	

Because they so often encode arguments and predicates of both action and quality on the same token, it is an exercise in futility to parse ASL tokens for grammatical category. Instead, distributions on each type of expression: Sign, classifier (CL), facial

expression (FG), head gesture (CG), nonlinguistic hand gesture (HG), constructed action (CA) and vocal sound (Voc) were analyzed. Table 3 shows these distributions.

Table 3

Distribution of ASL Tokens by Type of Expression

Linguistic tokens		Nonlinguistic tokens				
Sign	CL	FG	CG	HG	CA	Voc
25	19	16	2	4	59	9

Note. Table 3 shows distribution of ASL tokens on 2 types of linguistic expression: Sign and classifier (CL), and on 5 types of nonlinguistic expression: facial expression (FG), head gesture (CG), nonlinguistic hand gesture (HG), constructed action (CA), and vocal sound or sound quality (Voc).

Hypothesis 2 (After Slobin, 2004; McNeill, 2005)

Spanish speakers will use more gestures to encode manner-of-motion than English speakers will.

Findings for Hypothesis 2

This hypothesis was confirmed, but with small differences. When the sense of "gesture" was limited to "hand gesture," Spanish speakers used more gestures to express LMA elements (manner-of-motion) than did English speakers, both when comparisons were made by total number of tokens (32:29) or by percentage of all linguistic and nonlinguistic tokens (22% to 13%). When the category "gesture" was expanded to include all silent expressions: head gestures, facial gestures, and constructed actions as well as hand gestures, more "gestural" expressions were still seen in Spanish speakers

than in English speakers by percentage of total tokens (34% to 25%), but not by total number (49:55). Table 4 shows nonlinguistic tokens in English and Spanish by type of expression.

Table 4

Distribution of Gestural Tokens in English and Spanish by Type of Expression

	Hand Gesture	Facial Expression	Head Gesture	Constructed Action	Total
English	29	2	6	18	55
Spanish	32	3	0	14	49

Hypothesis 3

English and Spanish speakers and ASL signers will each encode comparable identifiable manner-of-motion elements, of both the static and the qualitatively dynamic kind, on both linguistic and nonlinguistic expressions.

Findings for Hypothesis 3

This hypothesis was confirmed as already discussed. (See Table 1 and Examples 16-22 above.) Subjects representing all three experimental languages provided linguistic and nonlinguistic tokens encoding similar LMA elements for every focal event. Furthermore, when presented with a dynamically salient event they described dynamics without being asked to do so and when presented with a sequence of dynamically bland but spatially complex movements, they described actions based on static form, relationship, direction, location, and path without being asked to do so.

Additional iinformation concerning distribution of LMA elements (manner-of-motion) can be obtained by examining the type of expression used to encode them.

Hypothesis 4

LMA provides essential and previously missing tools that expand and differentiate the semantics of dynamic versus static qualities in descriptions of manner-of-motion for application in experiments, which Slobin has called for (2005b, p. 320), in comparative crosslinguistic and cross-typological frameworks.

Findings for Hypothesis 4

This hypothesis was confirmed. The investigator developed effective forms for presenting discourse examples and comparing linguistic and nonlinguistic expressions of manner-of-motion used LMA to account for parallel descriptions of dynamic and static qualities in oral/aural and visual/kinesthetic expressive/perceptual modes. LMA revealed crosslinguistic similarities, such as the tendency in all three languages to identify the elements direct, strong, light, free, contact, and quick more often than other such elements. LMA also showed language-specific contrasts, such as the English-speaking subjects' frequent identifications of strong, light, and direct (mixed and severe elements of stable state), compared with the Spanish speakers' frequent identifications of light, direct, and contact (relationship and elements of mixed stable state), and with ASL signers' frequent identifications of light, quick, and free (elements of passion drive P-taps).

Relationship of tokens to elements that they encode

Tokens and the elements they may encode do not equate in number. Some tokens (words, phrases, and expressive movements) contain only one dynamic or static LMA

quality (strong, light, direct, indirect, quick, sustained, controlled, free, form, contact, and support), while others include several. The average ratio of elements to tokens supplied by all subjects was nearly 2:1. Table 5 compares the gross number of instances of occurrences of LMA elements with the number of tokens encoding them in each language.

Table 5

Tokens Compared with Instances of LMA Elements by Language

	Tokens	Instances of LMA Elements
English	218	356
Spanish	146	272
ASL	191	349
Totals	555	977

When the encoding of LMA *elements* on linguistic versus nonlinguistic tokens is compared, a different picture emerges. Of the 977 instances of LMA elements encoded on tokens, only 31% were expressed on linguistic tokens. Of the 356 instances of LMA elements found in the English data 39% were expressed on linguistic tokens; of the 272 instances of LMA elements found in the data, 36% were expressed on linguistic tokens; of the 349 instances of LMA elements found in the data, 19% were expressed on linguistic tokens. This phenomenon results from the tendency of nonlinguistic expressions to encode more elements simultaneously at the rate of about 2:1. Table 6 shows number of LMA elements occurring on linguistic versus nonlinguistic tokens in the three experimental languages.

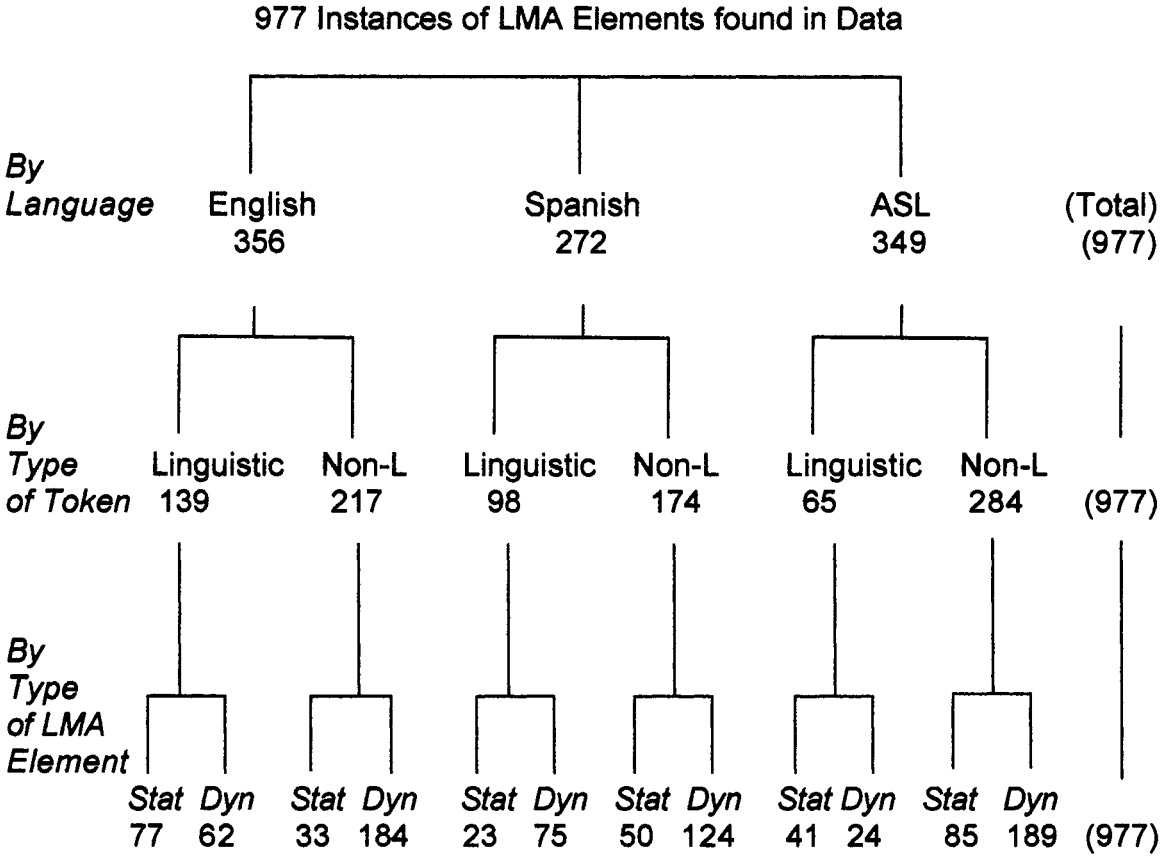
Table 6

Linguistic and Nonlinguistic Encoding of LMA Elements by Language

	Linguistic	Nonlinguistic	Total
English	139	217	356
Spanish	98	174	272
ASL	68	281	349
Total	305	672	977

Further information on lexical patterns emerges in the comparison of instances of static elements versus instances of dynamic elements. Of the 977 instances of LMA elements expressed by all nine subjects, 319 were static (form, contact, and support) and 658 were dynamic (strong, light, direct, indirect, quick, sustained, controlled, and free).

When the number of instances of static and dynamic LMA elements is compared by linguistic versus nonlinguistic encoding, contrasts are seen. Linguistic expressions of static elements were 70% of 110 by English-speaking subjects, 32% of 73 by Spanish-speaking subjects, and 30% of 136 by ASL-signing subjects. On the other hand, Linguistic expressions of dynamic elements were 25% of 246 by English-speaking subjects, 38% of 199 by Spanish-speaking subjects, and 11% of 213 by ASL-signing subjects. Figure 14 shows the relationship of all 977 instances of static and dynamic elements as they were expressed on linguistic and nonlinguistic tokens in the three experimental languages.



Legend. Figure 14 shows the complex relationships of instances of static (Stat) and dynamic (Dyn) LMA elements by language as they appear on linguistic and nonlinguistic (Non-L) tokens.

Figure 14

Relationship of 977 Instances of Static and Dynamic Elements on Linguistic and Nonlinguistic Tokens by Language

LMA applied to data of Focal Events 1-17

The form and content of Focal Events 1-17, which all were brief events with salient dynamics, contrasted with that of Focal Event 18, which was an extended sequence with no salient moments but very steady dynamics and many spatial references, therefore data from Focal Events 1-17 was analyzed separately in terms of LMA semantic elements. The number instances when each of the 11 analytical elements selected for this experiment (strong, light, direct, indirect, quick, sustained, controlled, free, form, contact, and support) occurred in the stimulus vignettes were unequal. The total number of each LMA element that Laban Movement Analysts (CMAs) had identified in their preanalysis were counted. These totals are presented in Table 7 along with an index of their relative frequency. The relative frequency index used in tables is derived by taking the number of instances that a particular LMA element occurs across linguistic and nonlinguistic tokens and comparing it to the number of instances of all other LMA elements across linguistic and nonlinguistic tokens.

Table 7

Relative Frequency Index 1: CMA Identifications of Elements in Focal Events 1-17

LMA Element	Number	Relative Frequency Index
Direct	10	1
Free	10	1
Strong	8	2
Contact	8	2
Light	7	3
Quick	6	4
Sustained	6	5
Form	5	6
Support	4	7
Controlled	3	8
Indirect	2	9

Note. Table 7 shows the number of LMA elements identified by CMAs in Focal Events 1-17 indexed according to the relative frequency of their occurrence. Because of ties in frequency, there are only nine degrees of the index.

There is actually no limit to the number of tokens that could be supplied in subjects' descriptions. Furthermore, a given token in each of these three languages may encode a variable number of semantic elements within a reasonable range of about 0-4. Theoretically, if CMAs observed 10 instances of direct focus within the 17 focal events, then 90 total tokens, that is, one from each of the nine subjects in each instance, might be predicted to constitute 100% agreement. However, that mathematical relationship is false, due to the fact that many tokens and elements occurred redundantly in descriptions

of the same event, yielding more than any posited 100%. For example, CMAs identified eight instances of strong, which, multiplied by 9 is 72, but the nine subjects' responses in references to these same moments contained 100 semantic indications of strength. Because of this open, unpredictable possibility, agreement was addressed by comparisons of relative frequency of LMA elements encoded, not by total responses. A total of 896 linguistic and nonlinguistic tokens expressing elements of LMA semantics comprising 326 from English-speaking subjects, 251 from Spanish-speaking subjects, and 319 from ASL-signing subjects were compared found in Focal Events 1-17. These elements were then compared with LMA and crosslinguistically by indexes of relative frequency.

There was high agreement in terms of relative frequency indexes in the three languages with those of the CMAs' precodings. Direct, strong, light, free, contact, and quick were identified most often, not only when the total of all linguistic and nonlinguistic tokens was considered, but also when only linguistic encodings were isolated. These comparative frequency indexes are shown in Table 8.

Table 8

Relative Frequency Index 2: CMA Identifications of Elements in Focal Events 1-17 compared with those of Subjects by Type of Expression

	Relative Frequency Indexes		
Element	CMAs'	Subjects'	
		Total Instances	Instances on Linguistic Tokens
Direct	1	1	2
Free	1	2	1
Strong	2	3	4
Contact	2	3	4
Light	3	1	4
Quick	4	2	5
Sustained	5	6	7
Form	6	5	8
Support	7	4	6
Controlled	8	7	9
Indirect	9	8	10

Note. Table 8 compares the frequency index of identifications of each LMA element by CMAs in Focal Events 1-17 with instances of subjects' encoding on all tokens in the middle column and on exclusively linguistic tokens in the right-hand column. Because of ties in frequency there are varying degrees in the indexes.

A rather consistent, if highly generalized, agreement between subjects' and CMAs' tendencies and abilities to observe and express LMA elements in motion description can be interpreted from Table 8. The discrepancy in subjects' linguistic versus total expressions of the element *quick* is notable.

When relative frequency indexes are crosslinguistically compared, variations occur that illuminate language-specific linguistic and/or cultural patterns in general and manner-of-motion lexicalization patterns specifically. Table 9 compares relative frequency indexes of total and linguistic occurances in the three experimental languages.

Table 9

Relative Frequency Index 3: Elements in Focal Events 1-17 by Type of Expression

Relative Frequency Indexes of LMA Elements

		English		Spanish		ASL	
	CMAs	all tokens	linguistic tokens	all tokens	linguistic tokens	all tokens	linguistic tokens
Direct	1	2	3	1	1	3	2
Free	1	4	1	4	3	1	1
Strong	2	1	2	5	8	4	4
Contact	2	5	1	3	2	2	5
Light	3	3	4	2	4	1	6
Quick	4	4	5	4	7	1	3
Sustained	5	8	9	8	5	7	6
Form	6	7	7	7	9	6	6
Support	7	6	6	6	5	5	5
Controlled	8	10	9	6	6	9	7
Indirect	9	9	8	9	10	8	8
Lowest rank	9	10	9	9	10	9	8

Note. Table 9 shows relative frequency indexes of each LMA element by total instance and by linguistically encoded instances in three languages. Because of ties in frequency there are varying degrees in the indexes. The lowest degree appearing in each column is shown again in the last row.

Several generalizations are possible concerning the data presented in Table 9. In terms of the relative frequency index, the highest three elements of each language coded on all tokens, both linguistic and nonlinguistic, show contrasting as well as overlapping elements. Those from the English data were strong, light, and direct, showing a tendency of these subjects to identify force and directness in severe and mixed stable state. Those from the Spanish data were direct, light and contact, showing a tendency of these subjects to identify relationship and mixed stable state. Those from the ASL data were light, quick, and free, showing a tendency to of those subjects to identify P-taps. The lowest elements in terms of relative frequency also show general agreement, the very lowest being indirect in the LMA, English, and Spanish data. The ASL data was somewhat exceptional, those subjects expressing indirect more times than controlled, but still not with very high relative frequency. It is also notable that the Spanish-speaking subjects identified strong much less often than did the English speakers or ASL signers.

LMA elements found in linguistic tokens only

Continued overlap and contrast are seen when crosslinguistic comparisons are limited to the relative frequency index of those elements appearing on only linguistic tokens. Startling contrasts were not shown between linguistic and total encodings. The three highest elements in the total encodings index remained in the top half and the three lowest remained in the bottom half in the relative frequency index of linguistic encodings. However, the ASL data showed contrast, with two dynamic elements in the relative frequency index of all tokens being replaced by two static ones in the index of linguistically encoded elements. In terms of the of the relative frequency index of

linguistically encoded elements, the highest three from the English data were direct, free and contact, showing a tendency to lexicalize mixed remote state and relationship. The highest three from the Spanish data continued to be contact and mixed stable state (direct and light). The relative frequency index of elements encoded on linguistic ASL tokens showed quick and free remaining in the top three, but direct replaced light, showing a tendency lexicalize elements of a vision drive tap (direct, quick, and free) as opposed to a passion drive tap (light, quick, and controlled) in linguistic as well as total tokens, but contact replaced free in fourth place. It is notable that in all three languages, when the relative frequency index was limited to linguistic encodings, static forms were elevated in the index, as was the quasi-locative qualitative element of direct focus. This could be interpreted as a general preference for the lexicalization of manner-of-motion elements that can be identified by concrete and/or static spatial references and relationships, as opposed to qualitatively dynamic ones.

Again, it must be emphasized that many of the types of expression designated as nonlinguistic in the ASL analysis are controversially so. The tendency of the ASL-signing subjects to encode few contact elements on Signs and classifiers probably results from the content of the stimulus vignettes, where actions showing this relationship were mostly of the type that is most often encoded by constructed actions, that is, those that involve the arms and/or hands and a negative space pronoun (♦), such as hugs and piggyback rides. ASL has Signs to express many subtly differentiated types of contact.

Focal Event 18: Special analysis.

Focal Event 18, a dynamic anomaly featuring the character Keegan performing a series of mechanical actions in an unvarying mood of remote state, required a special approach to analysis. In order to present findings in subjects' descriptions of this dynamically steady but spatially complex event, dynamic expressions are addressed through general discussion rather than analyzed, while certain categorical terms of were added to the analysis of purely functional motion. In addition, examples 27-31 in this special analysis section are presented in an alternative form highlighting the whole sequence rather than individual tokens.

In the first place, because the entire event fluctuated minimally in configurations of a single state (remote), few tokens expressing dynamics were obtained. In the second place, the unique dynamics of this event yielded descriptive tokens not parallel to the rest of the data. Perceptions were mostly rendered through negative and indirect expressions, where the qualitative description is a product of the whole clause, as seen in examples 25 and 26. This would have created a false effect on the general analysis, which was focused more on smaller chunks of discourse, that is, words, actions, and phrases, yet are important to acknowledge, because they do produce a sense of remote state.

25. English

There was	**very**	**little**	**emotion**	**conveyed**	**in his behavior**
AUX	Adv	Adj	N	Vt.3sg.past	PP
			Theme	Accomplishment	Location

remote state

26. Spanish

	HG contact FG. "vacant stare"			
Está	***pensando***		***en***	***que***
COP.3sg.pres.Subj	V.think.parcpl.prog	+	part	PRO.rel
Experiencer	State			

lugar	***ponerlo***
N.place	Vt.put.inf+PRO.3sg.n.Obj
Location	Accomplishment+Theme

'He is pondering what place to put it'

remote or mobile state

It is notable that Example 26 seems to employ a verb plus particle type construction. It is the special combination of *pensar* "to think" with *en* "in" or "on" that creates the meaning of "to think about" or "to ponder."

In the third place, the highly spatial content of Focal Event 18 required the expansion of certain spatial categories and alternative classifications of certain tokens. Direction was prominent in this focal event, but not so in the others. Furthermore, tokens of direction were consistent crosslinguistically but were often expressed by ASL forms that were not included in the analysis of Focal Events 1-17, pointing and gazing. These two forms were included in the analysis of Focal Event 18 because they were needed to show crosslinguistic parallels here. A reference indicated by pointing at a previously designated space – known conventionally in ASL as *index* (IDX) – was added to the linguistic category of classifiers. Somewhat similarly, the ASL feature *gaze*, that is, sustained direction of facial and eye focus, was taken into account in Focal Event 18

whenever the subject's looking clearly indicated directional or locative aspects of the motion event. However, because the exact interpretation of any given gaze still varies in ASL, gazes were considered to be nonlinguistic. One more spatially significant semantic category not included in the analysis of the other 18 focal events was direction (DIR).

Focal Event 18 elicited a straightforward description of dynamic quality from only one subject, English-speaking Subject 1, who used the words "robotic," and "mechanical," which are typical descriptive terms for remote state. The other two English-speaking subjects commented indirectly with expressions such as " It's very odd..." and as seen in Example 25, "...very little emotion..." Spanish-speaking and ASL-signing subjects basically did not comment on the dynamics, except for Spanish-speaking Subject 3, who used a unique approach. The way this subject addressed the mood was by speculating upon Keegan's mental state, as seen in Example 26, and with the expressions *...se le calló* "...was keeping it secret," *piensa en su mente* "pondering in his mind," and *sabe que va a buscar* "he knows what he is going to search for," may refer to the distant focus often associated with remote state.

It is notable that eight of the nine subjects retained a pleasant but businesslike free and direct mixed remote state configuration, mirroring the LMA qualities of the actor in the stimulus vignette while describing Focal Event 18. English-speaking Subject 3 was the exception, with many quick, direct, controlled-to-free outbursts and meaningless gestural "babbling" with fluctuating flow, alternating between passion drive and vision drive, seemingly showing an attitudinal comment of frustration with either the weirdness of such zombie-like behavior or the difficulty in describing it.

On the other hand, subjects' use of purely locative and directional terms in recounting the actions in order was impressive in its sequential accuracy and in its crosslinguistic similarity. Focal Event 18 consisted of a sequence of 14 actions, listed in order below with notes concerning subjects' identifications of them. None of the subjects' identifications were incorrectly sequenced.

1. A man enters – identified by all 9 subjects
2. climbs up a stepstool – climb identified by 8 subjects; stepstool by 7
3. opens a high cabinet – cupboard by 5; high by 6; opens by 4
4. gets an object out – get out and object both identified by all 9 subjects
5. holds the object – identified by 1 Spanish-speaking and 1 ASL-signing subject
6. closes the cabinet – identified by all 3 ASL-signing subjects only
7. climbs down – identified by all 9 subjects
8. sets the object on the floor – identified by only 2 subjects, both English-speaking
9. gets down – identified by 7 subjects including all ASL-signing and English-speaking subjects, 4 of whom described a support change, the other 3 describing a bodily form change
10. crawls – identified by 7 subjects including all ASL signers and English speakers
11. opens a low cabinet – all 3 terms identified by 8 subjects
12. puts the object in – identified by all 9 subjects
13. closes the cabinet – identified by only 2 subjects, both ASL signers
14. sits back on his heels – identified by 2 English speakers and 2 ASL signers

English-speaking subjects produced 40 different linguistic tokens and 3 nonlinguistic ones (hand gestures), while Spanish-speaking subjects produced 23 linguistic tokens and 3 nonlinguistic ones (hand gestures) in describing this event. (The "babbling" gestures of English-speaking Subject 3 were not counted as being descriptive.) Appendix I is a complete list of these English and Spanish words and phrases.

Eighty-eight per cent (35 of 40) English tokens were verbs, including V+S forms, that were either dynamically neutral, such as "to get" or those such as "to crouch" and "to climb down" that conflated motion with static elements of form, support, contact, location, and direction, with two exceptions, "to cradle" and "to hide," which included the dynamic elements of indirect and flow. As expected for an S-language, directional aspects of action were expressed on V+S forms. Of the 35 English verbs, 21 were V+S forms. Three adjectives, "high," "low," and "upper" were used to locate vertical level. One support relationship was expressed by a prepositional phrase, and one adverb was used to modify distance.

A large percentage (69%) of Spanish tokens were also verbs. Of the 27 tokens, 18 were verbs that conflated – in a pattern similar to English – only the static manner-of-motion elements of (a) form, as in *hincarse* "to bend onself/to crouch," (b) supporting, as in *poner* "to put," and (c) contact, such as *agarrar* "to grasp." All three of the words expressing change bodily form were reflexive. Location was more often expressed by prepositional phrases such as *en el piso* "on the floor," and *de arriba* "upper." The only expression of supported *by*, beyond the default one of *caminar* "to walk," which conflates motion with supported-by-feet, was through a prepositional phrase, *caminar*

así "to walk like this." The sole adjective, *bajo* "low," was used here as in English, to locate a vertical level, and the only adverbs, *arriba* "above" and *abajo* "below," expressed vertical relationship. As expected in a V-language, motion and path were conflated on one third of the verb tokens (12 of 18). Both support and contact were additionally conflated on 8 of these, and contact only on 1 more. Another 3 verbs, all reflexive, expressed form change. A 16th verb, *agarrar* "to grasp" conflated motion, form change, and contact. The 2 remaining verbs *acomodar* "to accommodate/to fit something in," and *guardar* "to keep something safe," also refer to change in a container-contained relationship between two bounded forms. The tendency thus revealed of Spanish speakers to lexicalize static manner-of-motion elements but not dynamic ones on verbs may have less to do with Slobin and Hoiting's (1994) boundary-crossing constraint, that is, that Spanish verbs may not conflate manner with motion in expressions of boundary crossing unless the crossing is abrupt, than with the difference between static and dynamic elements previously lumped into the category "manner-of-motion."

Examples 27 and 28 show the actual sequence of some of these expressions as they appeared in the context of the subject's entire response.

27. English (12 linguistic tokens in sequence by English-speaking Subject 1)

"...walks in...steps up on...opens the cupboard...reaches into...pulls out...turns...steps down...puts it down...crouches...crawls further into...stashes...sits back on his heels"

In Example 28, linguistic tokens are *italicized* with glosses in "double quotes" below them.

28. Spanish (13 linguistic tokens in sequence by Spanish-speaking Subject 1)

Entra...	*sube a los escalones....*	*busca en la alacena de arriba...*
"{he} enters	climbs the stairs	looks in the upper cabinet

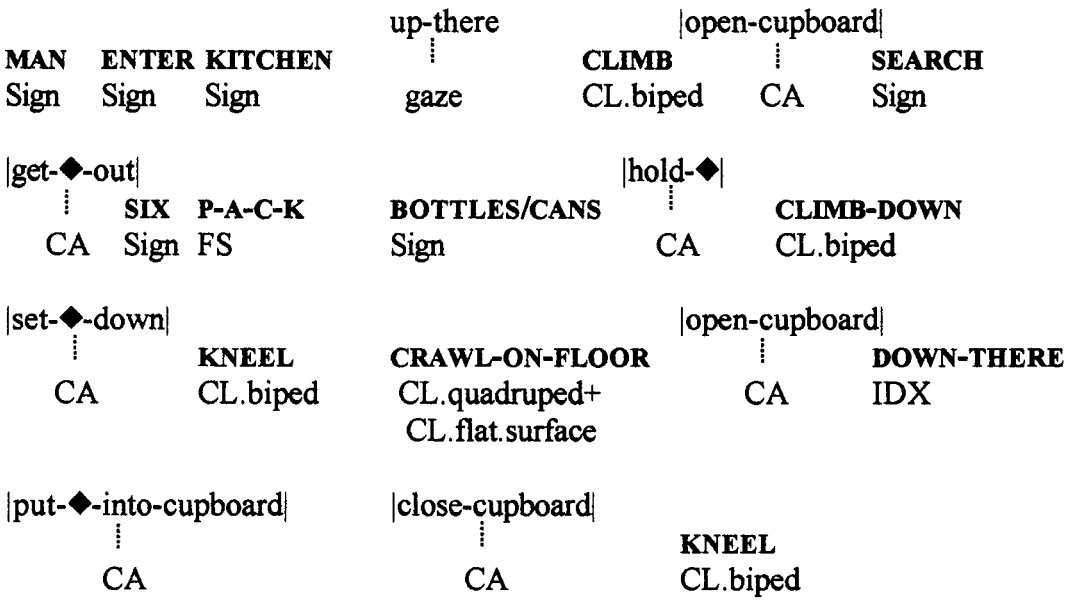
baja	*con unas...*	*se baja...*	*está en el piso,*	*se agache...*
climbs down	with some...	stoops	is on the floor	bends himself

pone las cosas en el suelo...		*abre la*	*alacena de abajo*	mete...
puts the things on the ground		opens the	lower cabinet	places...

lo guarda	*en*	*la*	*alacena de abajo*
keeps them safe	in	the	lower cabinet"

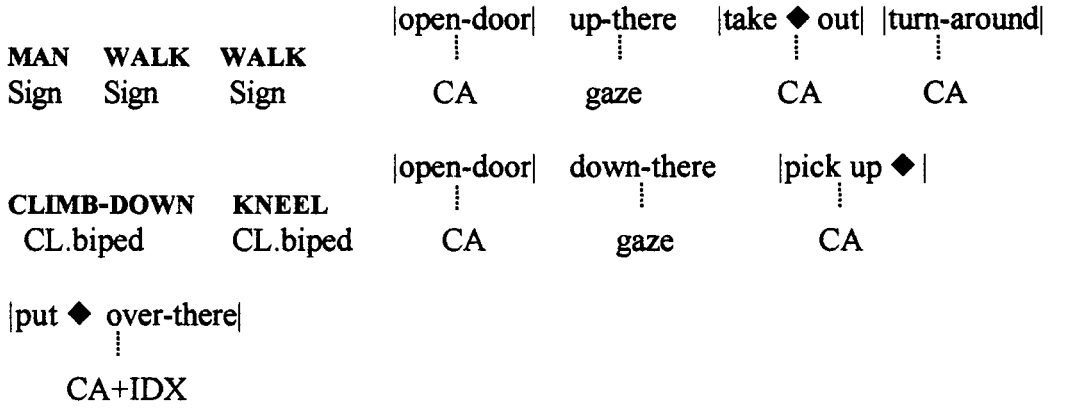
Focal Event 18 provided a streamlined demonstration of the interweaving nature by which signers switch between linguistic and nonlinguistic encoding. The alternative form of analysis and presentation in Examples 29 – 31 is intended to emphasize the shifts of token form in sequence within the stream of meaning. An example from each ASL-signing subject is presented to emphasize their similarity. Items considered linguistic in this special analysis, that is, signs, classifiers (CL), fingerspelled words (FS), and indexes (IDX), appear in **SMALL CAPS, BOLDED** on line 1, the main discourse line. Constructed actions (CA), discourse markers (identified only by being underlined), and gazes appear on suprasegmental line A above line 1. The coding form of each item, be it linguistic or nonlinguistic, is identified in line 2 below the main discourse line, with suprasegmentals being also connected by dotted vertical lines to their coding identifiers in line 2. In place of a gloss, a translation in the form of an integrated paragraph is presented below the analysis in "double quotation marks."

29. ASL (Full text of Subject 1's response to Focal Event 18 with all codings identified)



"A man enters a kitchen, looks up, climbs up, and opens a high cupboard. He gets something out. It is a six-pack of beverages. Holding it, he climbs down and sets it down. Then he kneels to crawl on the floor to a lower cupboard and put the six-pack into it. Then he kneels."

30. ASL (Full text of Subject 2's response to Focal Event 18 with all codings identified)



"A man is walking. He opens a high door, takes something out, turns around and climbs down. Then he kneels and opens a lower door. He picks the object up and puts it over there."

31. ASL (Full text of Subject 3's response to Focal Event 18 with all codings identified)

MAN **WALK-IN** **SEE** **LADDER** **CLIMB** **CUPBOARD**

Sign CL.biped+ CL.flat.vertical Sign+gaze Sign CL.biped Sign

|hold-handle| |open-cupboard| |take-out ◆|

CA CA CA

SQUARE OBJECT **BEVERAGE**

CL.square CL.bottle+pl

nod |put ◆ on-floor| nod

MAN **CLIMB-DOWN** **MAN** **WALK** **KNEEL**

CL.biped CL.biped Sign CL.biped CA CL.biped

|open-cupboard| |push ◆ in|

CRAWL **CUPBOARD** **LOWER**

CL.quadruped Sign gaze CA CA

|close-cupboard|

CA

KNEEL

CL.biped

"A man walks in, sees a ladder and climbs it. He grasps the handle of a cupboard, opens it and takes something out. It is a square object: a beverage pack. The man climbs down and walks, puts the pack of bottles on the floor, and kneels. Then he crawls to a lower cupboard, opens it, pushes the bottles in, closes the cupboard and kneels."

ASL-signing subjects produced 57 total tokens in response to Focal Event 18, 53% of which were encoded in the forms designated for this particular analysis as being linguistic: signs, classifiers, and indexes. Repeated tokens, such as CL.biped, were counted once for each occurrence, because of the variety of their uses. No motion or quality of motion was expressed through fingerspelling. The remaining tokens were

constructed actions (36%) and gazes (11%). The numerical distribution of total ASL tokens on encoding forms in this event appears as Table 10.

Table 10

Distribution of ASL Encoding Forms for Focal Event 18

Linguistic forms			Nonlinguistic forms	
sign	classifier	index	constructed action	gaze
8	19	3	21	6

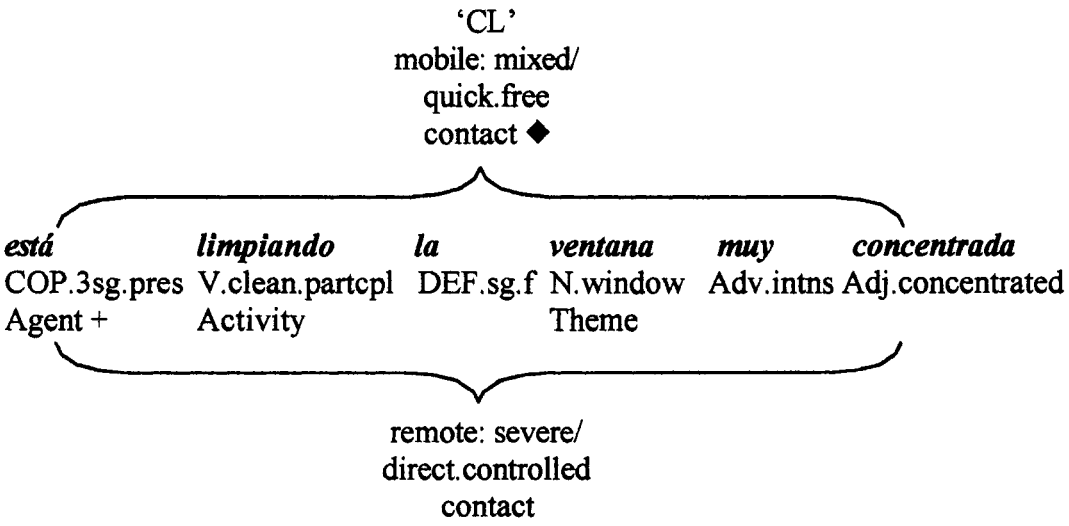
The contradictory relationship of dynamic encodings appearing sometimes on classifiers (CL) and classifier-like gesture ('CLs') may relate to lexicalization patterns. The dynamics expressed on English and Spanish 'CLs' sometimes contradict those in linguistic tokens within the same description, such as seen in examples 32 and 33. In Example 32, a quick gesture accompanies the participle "creeping," a sustained action.

32. English

		'CL' mobile: mixed/ quick.free	
She	**came**	**creeping**	**around the corner**
Pro.3sg.f.Subj	V.3sg.past	Advl	PP
Agent	Activity		
		mobile: mixed/ sustained.controlled form: rounded	

In Example 33, the classifier-like gesture is quick and free, but the phrase *limpiando...muy concentrada* "cleaning, very concentrated [-ly]" indicates directness and control.

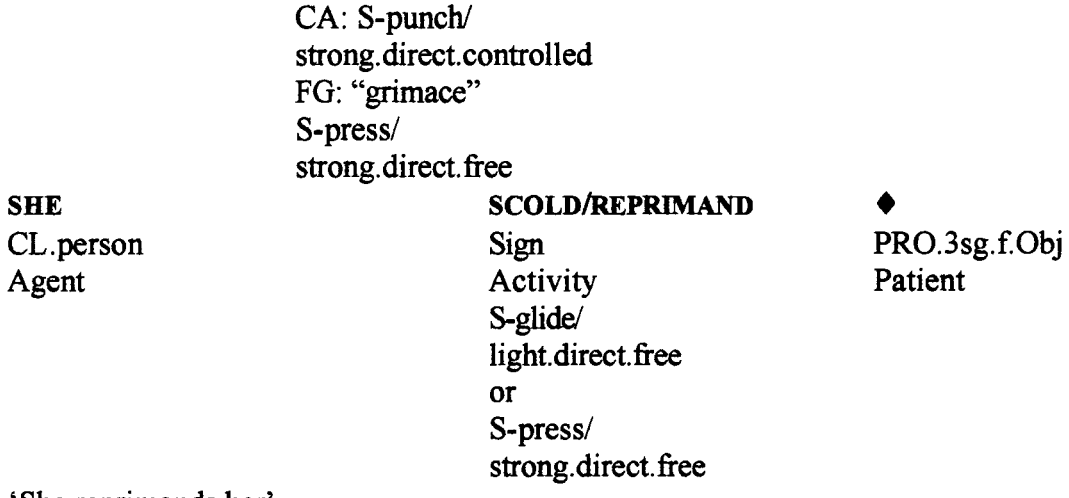
33. Spanish



'She is cleaning the window with much concentration'

This type of contradiction also appears in ASL between a sign, its dynamic quality, the dynamic quality it encodes, and constructed actions, as seen in Example 34.

34. ASL



'She reprimands her'

The quick, free shake of the index finger that constitutes the linguistic Sign for both "scold" (a light, direct, free S-glide) and "reprimand" (a strong, direct, controlled S-punch) in Example 34 could be interpreted as either but for the constructed action, an

intensely contracted forward rounding of the torso with one hand on her hip, and the seriously concerned facial expression of frowning brows, focused gaze, and pursed, twisted lips, which trigger the "reprimand" interpretation. This sign, which itself is a quick and free action in mobile state, was interpreted as "scold" in other instances without the suprasegmentals seen in Example 34.

What typically happens in expressions that appear dynamically contradictory is that the 'CL', CL, or Sign moves with more quickness and free flow than the dynamics described otherwise. A hypothetical interpretation is that such CLs and 'CLs' are on the cusp of becoming conventionalized, even lexicalized, so that certain parameters of the movement itself constitute a type of signifier that can be rendered easily and quickly in a type of contracted shorthand. This could be a step toward lexicalization, where some of the dynamic content is implied by a recognizable, abstract, signal. It is also of note that this phenomenon bears some relationship to the notion of partitionable zones, putting the abstract signal in one zone with its missing dynamics expressed somewhere else.

If dynamic elements disappear from lexicalized expressions but are still present nonlinguistically, it is important to recognize them in comparisons between languages that tend to lexicalize manner-of-motion and those that do not. The general tendency to lexicalize those manner-of-motion elements (such as path, direction, location, and form) that are easily identified with concrete and/or static spatial references over those that are dynamic and more qualitative (such as light and controlled) was seen throughout this study. It may be preferable for linguists to fully explore how people communicate the intense, intensely human information contained in dynamic motion rather than to

marginalize it through reduction in more easily codable systems. This is the most important potential function of LMA in semantic analysis.

Limitations of this Study

This study was broadly exploratory, giving it the advantage of high productivity but also some disadvantages. Future studies using LMA semantics should expand the subject pool to a statistically significant number, narrow the focus to parallel stimuli with parallel analytical items, and create hypotheses more amenable to statistical validation.

The exclusion of path and direction from analytical elements in this study in order to focus on qualitative dynamics severely limited many generalizations from the data concerning V-language and S-language encoding patterns. It may have also limited readers' perceptions of how LMA can be applied in the semantics of motion description. LMA provides an extensive and complex analysis of path and direction, which would serve more to refine than expand present linguistic analysis but would be helpful in clarifying such events as changes of form, direction, and support, especially their complex occurrences in simultaneous combinations such as changing direction, form, and support while moving on a path.

Beyond reexamining precision of scope, the three most important improvements to be made in any future related are to (1) recruit more native ASL signers into the subject pool, (2) develop an instrument to differentiate the described dynamics of the stimulus from the dynamics of modal attitude or commentary in the subject him/herself, such as the type of commentary evident in the gestural "babbling" of English-speaking Subject 3's description of Focal Event 18, which was probably also present, undetected, in other

tokens, and (3) separate concurrent, overlapping and sequential occurances of nonlinguistic and linguistic tokens in all languages under study.

Future Implications and Suggestions

The notable discrepancy between linguistic versus total encodings of quick in both ASL and Spanish may be explained by the hypothesis posed by Aronoff, Meir, & Sandler (2005) that we can expect iconic expressions in any language capable of them, and by Laban, Lamb and McNeill's concepts (effort, posture-gesture-merger, and growth point, respectively), that language and nonverbal expressions of meaning arise from an integrating impulse. If we can assume that people communicate with whatever means are most readily available, then the dynamic expression of quick must be more immediately available through physical expressions than verbal ones in ASL and Spanish, but more accessible linguistically in English. A related hypothesis is that physical actions are the most economical yet complete expressions of dynamic quality whenever the kinesthetic/visual expressive/ perceptual mode – which, according to Brentari (1998) allows much faster processing than the oral/aural mode – is available.

Dynamic motion is usually analyzed linguistically in terms of static forms, locations, situations, and relationships. Although Hayes, in a commentary on phonological description methods (1993), reminds us that "the static/dynamic distinction is an abstract one..." (p. 218), and concludes by favoring a static-target approach, his arguments emphasize the value of qualitative content in language nearly as much the selection of clear parameters.

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APPENDIX A

NOTATIONAL CONVENTIONS, SPECIAL USAGES, AND SYMBOLS

Notational conventions

1. Linguistic data items in Spanish are presented in *italics.*
2. Linguistic data items in ASL are presented in SMALL CAPS.
3. Suprasegmental discourse markers in ASL are presented underlined.
4. Fingerspelled words in ASL are presented S-M-A-L-L C-A-P-S separated by hyphens.
5. Constructed actions are set off by |vertical strokes|.
6. Transcriptions in the International Phonetic Alphabet are enclosed in [square brackets].
7. English glosses of expressions in Spanish and ASL are set off by 'single quotation marks.'
8. All data examples are single-spaced.
9. The main discourse line of an example is always set off in **boldface** type so that the reader can easily locate it in relation to its many analytical elements.

Special usages of terms within this thesis

1. When capitalized, the word "Sign" always refers to a lexical item in ASL.
2. The word "mood" is used in the ordinary sense and not as a linguistic term.
3. The word "effort" always refers to dynamic elements and configurations of LMA. It is never used in any other sense herein.
4. The word State, when capitalized, always refers to a type of predicate class. When it appears uncapitalized it always refers to an LMA configuration of two dynamic

factors. It is not used in any other sense herein except once in a quotation.

5. The word "drive" always refers to an LMA configuration of three dynamic factors. It is never used in any other sense herein.
6. The word "token" was appropriated for the specific purpose within this thesis to refer to for any form – linguistic or nonlinguistic – that encoded semantic elements of LMA. The only other appearance of this word in this thesis was in another specific sense referring to a type of blended ASL construction, a *"token" blend,* which sets up projected miniature scenarios in which a signer cannot participate, where it appeared in double quotation marks.

Symbols

1. The symbol ◆ is used in examples throughout this study to represent an empty space indexed as a previous reference or created by the negative space in mimetic representations such as hugging or carrying an object
2. {Wavy brackets} are used throughout to set off a placeholder pronoun to represent a semantically pertinent argument whose anaphoric reference is too far removed in discourse for inclusion in an example.
3. Horizontally oriented wavy brackets  show scope of inclusion in some examples.
4. A slash / indicates simultaneity or equality of elements in the text and is employed to show the integrity of an analytical term carried to the next line in the presentation of examples.

5. A forward arrowhead > stands for "becomes" and indicates a change in the classification when a second element, such as a satellite or prepositional phrase, changes the predicate class of a verb.
6. A vertical dotted line ⁞ is sometimes used to emphasize the sequential alignment of tokens and their analyses.
7. A plus sign + is used (a) in data coding sheets to indicate the occurrence of an LMA element on a token and (b) to indicate the co-occurrence of analytical terms and qualities in examples.
8. A check mark √ is used in data coding sheets to indicate the form of a token on which an element occurred.
9. The symbol [↗↘] is used for "labile sequence of rising and falling pitches."
10. The symbol [ˊ] means high tone.
11. The symbol [ ] means low tone.

APPENDIX B

KEY TO ABBREVIATIONS

A-	prefix for action drive	P-	prefix for passion drive
Adj	adjective	Part	particle
Adv	adverb	Partcpl	participle
Agrm	agreement marker	Past	past tense
ASL	American Sign Language	PGM	posture-gesture merger
AUX	auxiliary	pl	plural
CA	constructed action	POSS	possessive
CG	head gesture	PP	prepositional phrase
CL	classifier	Pres	present tense
'CL'	"classifier-like" construction	PRO	pronoun
CMA/ CMAs	certified Laban Movement Analyst(s)	prog	progressive
		reflex	reflexive
Conj	conjunction	rel	relative
COP	copula	S	satellite
DEF	definite article	S-	prefix for spell drive or satellite-framed language
DIR	directional		
f	feminine	sem	semantic
FG	facial gesture (facial expression)	sg	singular
FS	finger-spelled, finger-spelling	Sub	an experimental subject
HG	hand gesture	Subj	subject, nominative case
IDX	reference indicated by pointing	Subjs'	subjects'
INDEF	indefinite article	suprsg	suprasegmental
inf	infinitive	syn	syntax
IPA	International phonetic alphabet	V	intransitive verb
LMA	Laban Movement Analysis	V-	prefix for vision drive or verb-framed language
Ling	linguistic		
-ling	nonlinguistic	Voc	nonverbal sound or sound
m	masculine		quality
n	neuter	V+S	verb + satellite
N	noun	VP	verb phrase
NP	noun phrase	Vrx	reflexive verb
Obj	object, objective case	Vt	mono-/di-transitive verb
P	preposition	Vt+S	transitive verb + satellite

APPENDIX C

GLOSSARY OF LMA TERMS

action (A-)	A drive comprising the 3 effort factors of force, focus, and time The prefix A- indicates this drive.
awake	A state comprising the 2 effort factors of focus and time
contact	Touch
controlled	A flow element: restrained
direct	A focus element: single focus
dream	A state comprising the 2 effort factors of force and flow
drive	Any effort configuration involving elements of three of the four effort factors
effort	The dynamic quality arising from an inner integrating impulse or attitude that is observable in movement
element	Any of eight effort qualities constituting the poles of factors: strong, light, direct, indirect, quick, sustained, controlled, free
factor	Any of four effort continuums that define the structure of the theory: force, focus, time, flow
flow	The effort factor that determines precision in how movements are done Its polar elements are controlled and free.
focus	The effort factor that defines attention to space Its polar elements are direct and indirect.
force	The effort factor that defines use of power Its polar elements are strong and light.
form	A static shape: long, flat, round, or twisted
free	A flow element: unrestrained

indirect	A focus element: multiple foci
light	A force element: delicate
mobile	A state comprising the 2 effort factors of time and flow
passion (P-)	A drive comprising the 3 effort factors of force, time, and flow The prefix P- indicates this drive.
quick	A time element: sudden
remote	A state comprising the 2 effort factors of space and flow
rhythm	A state comprising the 2 effort factors of force and time
spell (S-)	A drive comprising the 3 effort factors of force, focus, and flow The prefix S- indicates this drive.
stable	A state comprising the 2 effort factors of force and focus
state	Any effort configuration involving elements of two of the four effort factors
strong	A force element: powerful
support	A static element referring to a situation where one entity rests upon another in relation to gravity
support by	The part of the supported body or form that makes contact with the supporting constituent Example: standing = support by the feet
support on	The supporting entity Example: standing = support on the floor
sustained	A time element: prolonged
time	The effort factor that defines timing Its polar elements are quick and sustained.
vision (V-)	A drive comprising the 3 effort factors of focus, time, and flow The prefix V- indicates this drive.

APPENDIX D

DESCRIPTIONS OF STIMULUS VIGNETTES IN PROSE WITH LMA TERMS AND ACCOMPANYING LMA SCORES

Vignette #1: Jane & Dora, Kitchen

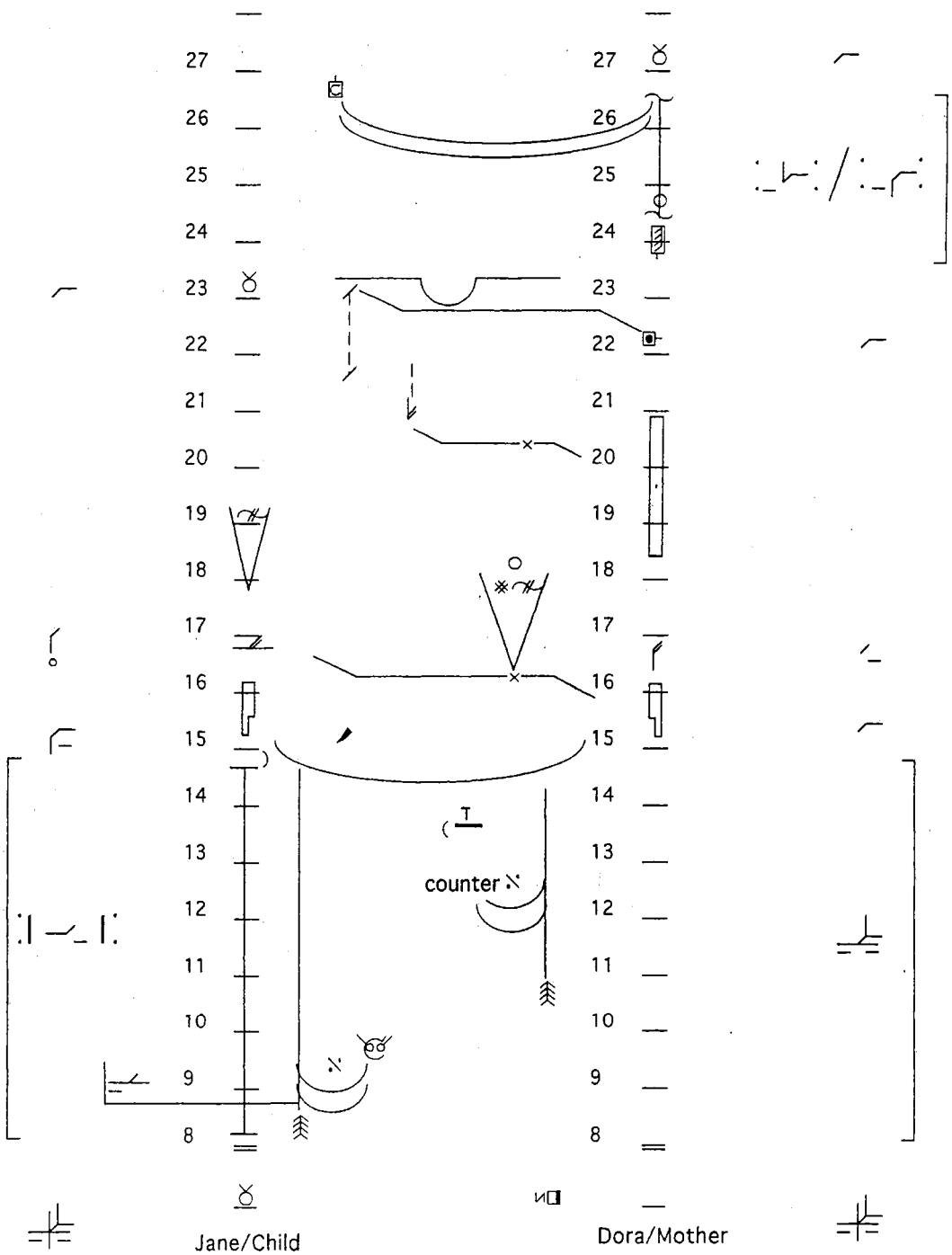
A child, Jane, is seen in stillness behind a beaded curtain. She runs into the kitchen, rubbing her eyes with both hands. Her iterative steps and gestures each exhibit the quality of mobile state: the steps are quick and free, while the gestures are more sustained and fluctuate in flow between free and controlled.

Meanwhile, the child's mother, Dora, flours a kitchen counter with brushing movements of both hands. Her actions exhibit qualities of vision drive in various configurations. That is, each of the three factors that constitute this drive – flow, space, and time – fluctuates along a continuum between its respective polar elements: flow = controlled-free, time = quick-sustained, and focus = direct-indirect.

Jane's straight path ends when she reaches her mother, hitting her with both hands. This action exhibits the quality of an action drive "A-punch" (strong, direct, and quick). Both characters then rebound with backward movements, Dora addressing Jane directly. Dora then sinks down to Jane's level in a momentary quick, free mixed mobile state action. She grasps and supports Jane, hugging her with increasing three-dimensional form. Her force and focus fluctuate in various configurations of stable state (strong-light/direct-indirect), while Jane relaxes with shape flow into passive weight. Then, as Dora rises, lifting Jane, Jane responds with her own increasingly three-dimensional form.

Standing, remaining in a severe stable state (strong, direct), Dora shifts Jane through a clockwise circular path to arrive supported on Dora's right hip, where they mutually address each other with directness. Jane ends in stillness, which she maintains until the end of the vignette. Then Dora wipes tears from Jane's face with the heel of her left hand in a sliding gestural path. The quality of this action is either an action drive "A-Glide" (light, direct, and sustained) or an action drive "A-press" (strong, direct, and sustained). Dora ends the vignette in stillness with direct focus.

THESIS VIG MOTS Sec:19(00:08:21-00:27:13)/Actions:10/Meas:20/Meter:1/SqPB:4/
Font:Gen9/ #1 Jane&Dora:Kitchen



Vignette #2: Tina & Jane: Back Door A

Jane's Auntie Tina is seen in stillness facing the back door of a cottage. She stands on her left foot and the ball of her right foot, using clockwise circular sliding gestures of a sponge held in her right hand to wash the window of the back door. The quality of this repeating phrase is a passion drive: a "P-float" (light, free, and sustained).

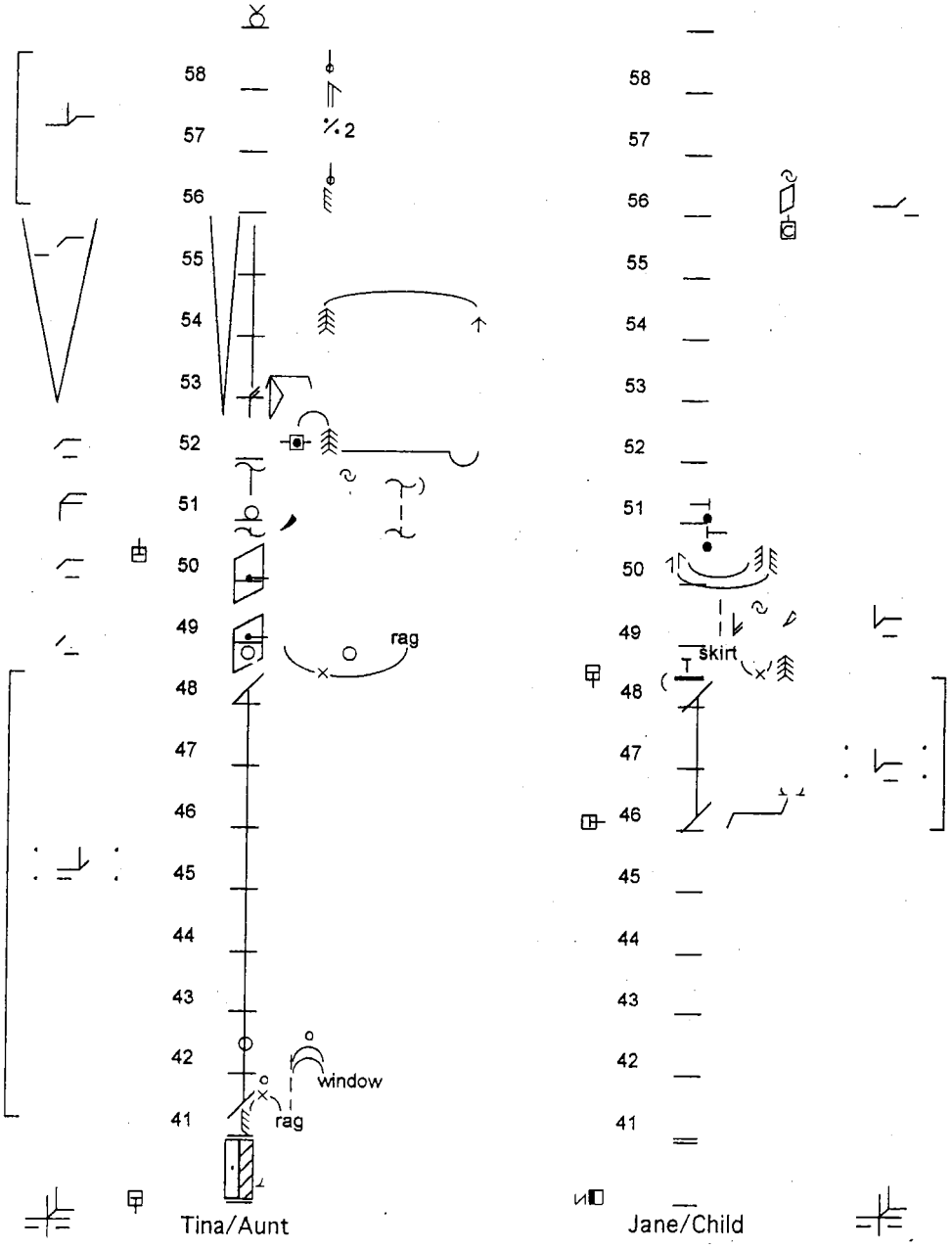
Meanwhile, Jane enters, tiptoeing around the corner of the house on a clockwise curving path with the iterative light, direct, and quick action drive "A-taps" of buoyant stepping, to arrive behind Tina's back, directly facing her. Grasping the hem of Tina's skirt with both hands, Jane flips it up in an action drive "A-tap" (light, direct, quick).

Tina reacts with a quick right twist of her upper body, immediately followed by a severe awake state (direct, quick) turn of the whole body to her right to see Jane, who is hugging herself in controlled flow, crossing her arms to grasp each opposite shoulder.

Tina then throws the sponge into the bucket with a spell drive "S-punch" (strong, direct, controlled), as meanwhile, Jane shifts her weight right, then left, with a momentary quick, free recuperation in mixed mobile state. Tina puts both hands on her hips and addresses Jane, in awake state, severe (direct, quick). She then steps right and sinks down to Jane's level, putting both hands on Jane's shoulders in mixed stable state, with increasing directness and sustainment. Jane turns her head right, then back to normal in a momentary recuperative vision drive "V-flick" (indirect, quick, and free) action.

Tina then speaks to Jane, incorporating a sequence of three increasingly larger gestures of the right hand, the third of which includes the arm, all done in spell drive with simultaneous gestural and postural "S-glides" (light, direct, and free). The vignette ends in stillness.

THESIS VIG MOTS Sec:18 (00:41:28-00:59:00)/Actions:10/Meas:41-59/Meter:1/SqPB:4/
Font:Arial9/ #2 Tina&Jane:BackDoor-A



Vignette #3: Dora and Mary: Back Door B

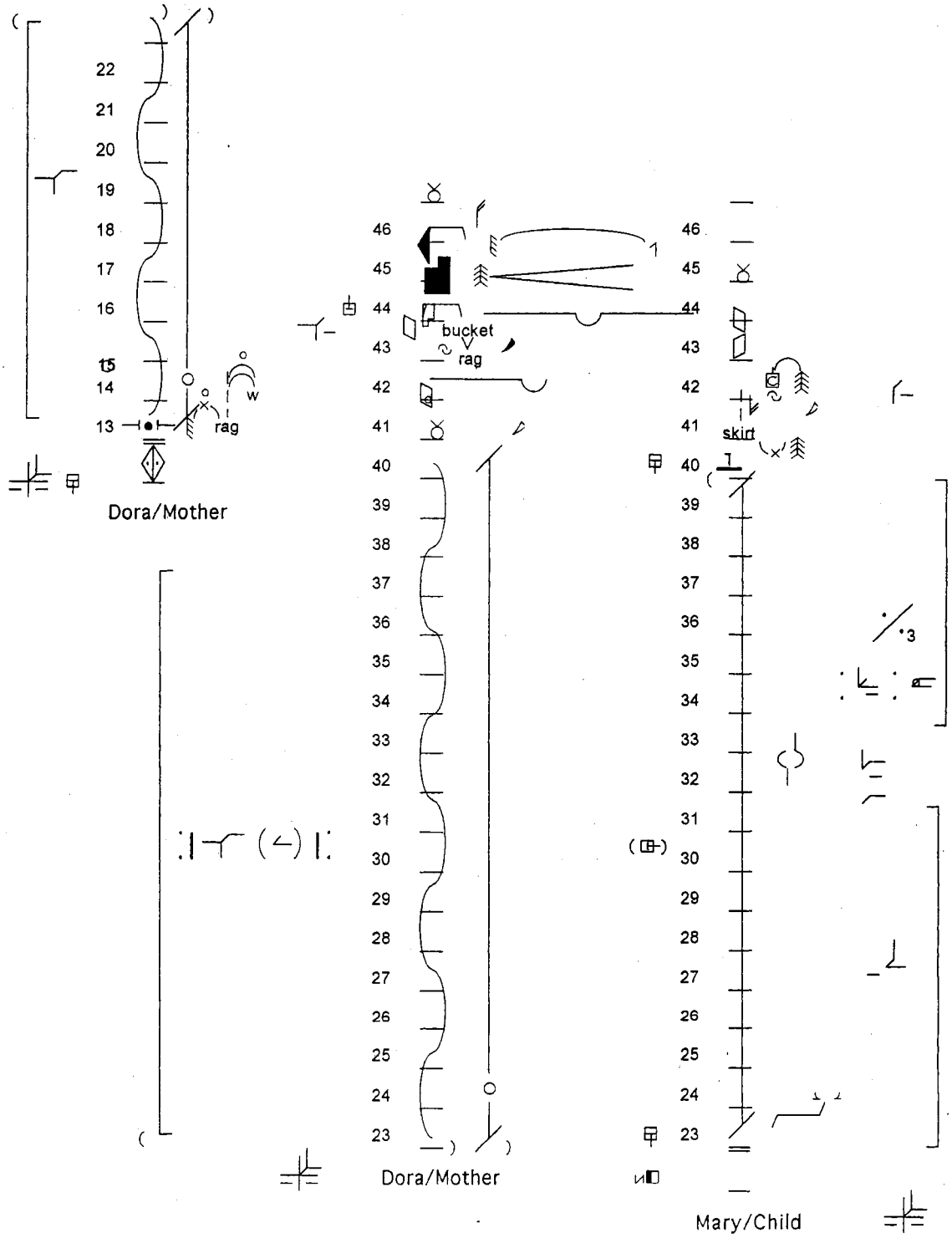
Dora is seen in stillness facing the back door of a cottage. Her weight is placed solidly on both feet in a wide stance. Using clockwise circular sliding gestures of a sponge held in her right hand, she washes the window of the back door with a repeating spell drive phrase of "S-presses" (strong, direct, and free) actions posturally supported by constant sideward shifts of weight, and with gestural reverses of direction in momentary controlled flow. She squats briefly with quickness while giving the sponge the quick twist of an action drive "A-slash" (strong, Indirect, and quick).

Meanwhile, Dora's older daughter, Mary, enters, tiptoeing around the corner of the house on a clockwise curving path. At first Mary remains indirect, sustained, and controlled in a vision drive "V-wring." Then, after a momentary direct preparation, she leaps, left foot to right foot, in an action drive "A-tap" (light, direct, quick). Her steps then become light, quick, controlled passion drive "P-taps" interrupted by three momentary pauses in remote state (severe) with controlled flow and direct focus. As she completes the pathway, arriving to face Dora behind her back, she lightly grasps the hem of Dora's skirt with both hands, and flips it up quickly with strength in severe rhythm state.

After a momentary stillness, Dora reacts with a quick right twist of her upper body to address Mary. Mary responds by turning away to her right, putting both hands to her face and giggling with quickness and fluctuating controlled-free flow in mixed mobile state.

Dora, turning left, throws the sponge into the bucket with a postural "P-slash" (strong, quick, and free). Then, after stepping backward on her right foot to look at Mary in mutual addressing, she reaches toward Mary with both hands while proceeding down the steps with increasingly extreme directness and extreme controlled flow in severe remote state. Her right hand touches Mary's left shoulder before she begins to sink as the vignette ends.

THESIS VIG MOTS Sec:33(01:08:14-01:47:03)/Actions:10/Meas:13-22(9)&23-47(24)/
Meter:1/SqPB:3/Font:Arial9/ #3 Dora&Mary:BackDoor-B



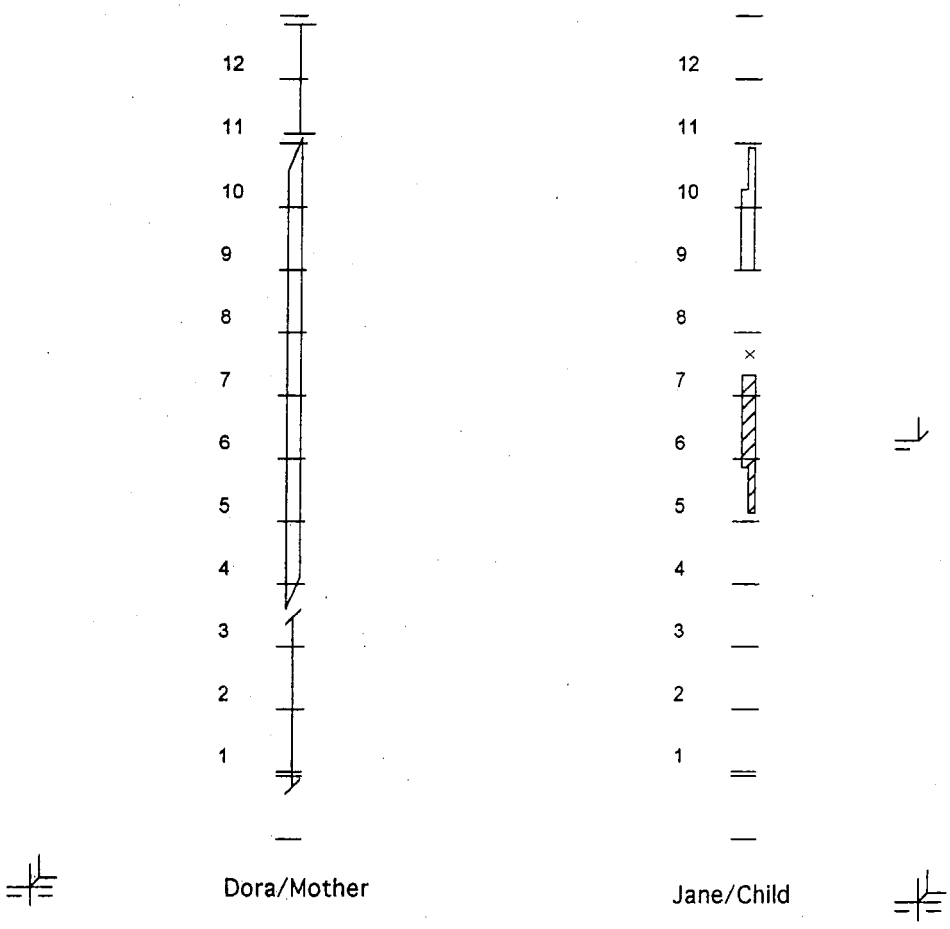
Vignette #4: Dora & Jane: Back Yard

Dora is seen caught in a still shot on a grassy lawn apparently in the midst of a circular clockwise path while supporting Jane on her shoulders. As the action begins she fluctuates in various configurations of rhythm state (force, time), using strong-light force and quick-sustained time. The path then spirals inward toward a central location, where she begins spinning to her right on the spot. Jane rides along in mixed dream state (force, flow) with strength and fluctuating flow, accommodating to Dora's movement through shape-flow, with occasional moments of direct attention to space.

Dora's small quick, free mixed mobile state vertical leap during the spin seems to initiate a free, light, and sustained passion drive "P-float" in Jane, who arches backward high immediately afterward with a full extension of her torso. Dora grows increasingly heavy and sustained in mixed (passive) rhythm state as she continues to spin while manipulating Jane forward and downward through several support changes to arrive supported in front of Dora's body cradled in her arms.

Dora then ends the turn with a light, quick forward movement of her right shoulder in mixed rhythm state as she addresses a point off-screen left, taking a moment of direct, controlled severe remote state stillness, then she exits toward this apparent point with Jane remaining immobile in passive weight in her arms as the vignette ends.

THESIS VIG MOTS Sec:11(02:01:19-02:12:29)/Actions:11/Meas:1-12)/Meter:1/SqPB:4/
Font:Arial9/ #4 Dora&Jane:Backyard



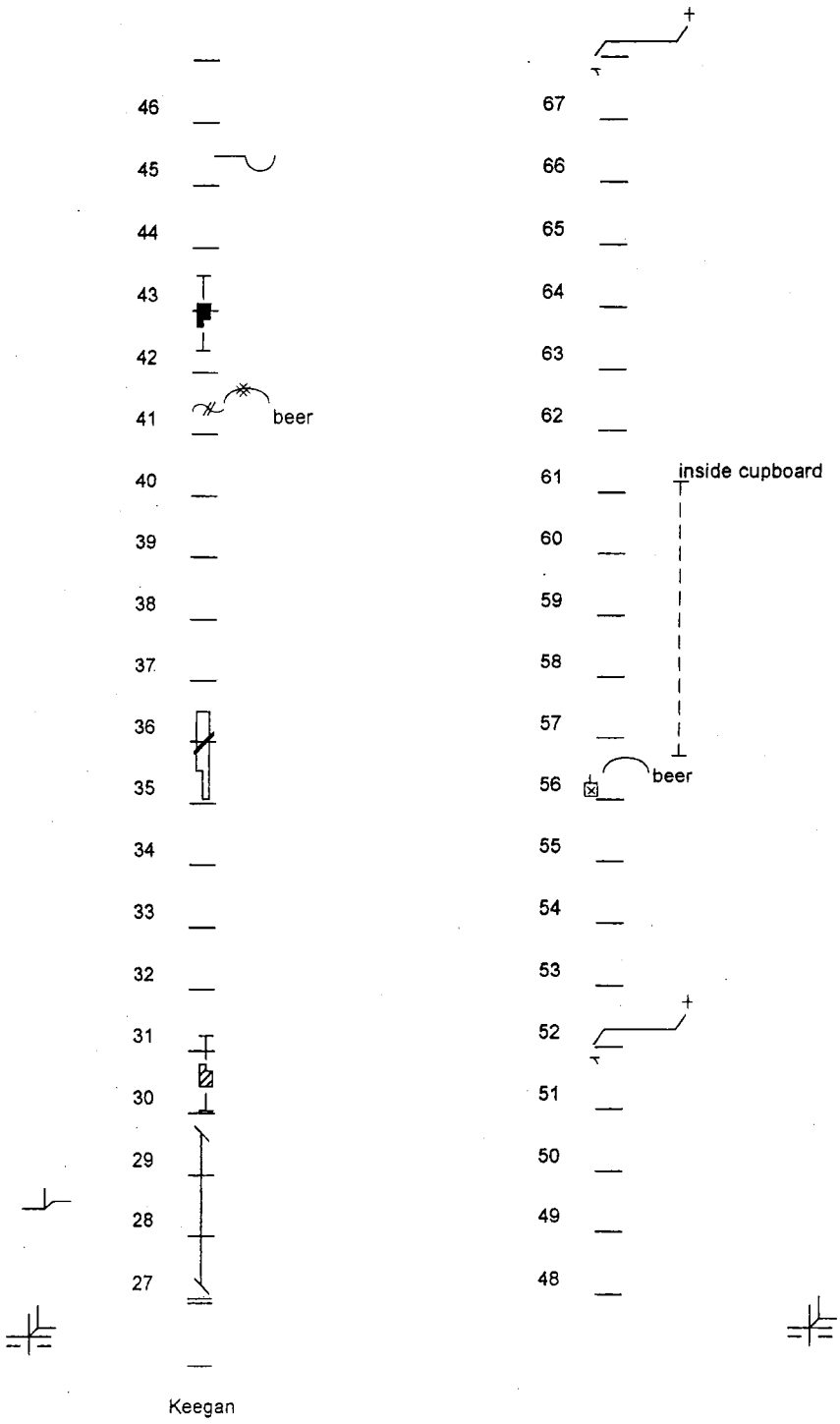
Vignette #5: Keegan: Kitchen

The vignette opens with a still shot of a modern kitchen into which Keegan then enters from off-screen left, walking a counterclockwise circular path in a spell drive "S-glide" (light, direct, and free), arriving at the foot of a ladder. As he climbs the ladder, he opens the door of an upper cabinet, into which he reaches, tilting his upper body backward, then posturally shapes his entire body with knee and chest flexion in mixed remote state (indirect, controlled) as he apparently grasps an object. He then freely closes the door while descending the ladder with the object – now seen to be a six-pack of root beer – supported in both arms and held with tight controlled flow against the front of his waist.

Turning to the right and shifting the root beer to a left hand support, he then sets it down on the floor and sinks down to support himself on both hands and knees. He crawls in a severe remote state (direct, controlled) on a short straight path that arrives with a left turn to face a lower cabinet, then, in direct, free mixed mobile state, he opens the cabinet door while sitting back on his heels. Lifting the root beer with his left hand, in controlled, direct severe remote state, he brings it to the front of his waist, changes to hold it in both hands and slides it deep inside the cupboard. He then sits back on his heels while closing the door with free flow to end the vignette.

Another way of describing this is to say starts in spell, then loses all the force of intention or ego and does everything subsequently in configurations of remote – this interpretation explains the various descriptive interpretations of "odd," "robotic," etc.

THESIS VIG MOTS Sec:45(02:27:19-03:10:25)/Actions:16/Meas:27-68
Meter:1/SqPB:4/Font:Arial9/ #5 Keegan:Kitchen



Keegan

Vignette #6: Dora and Mary: Bedroom

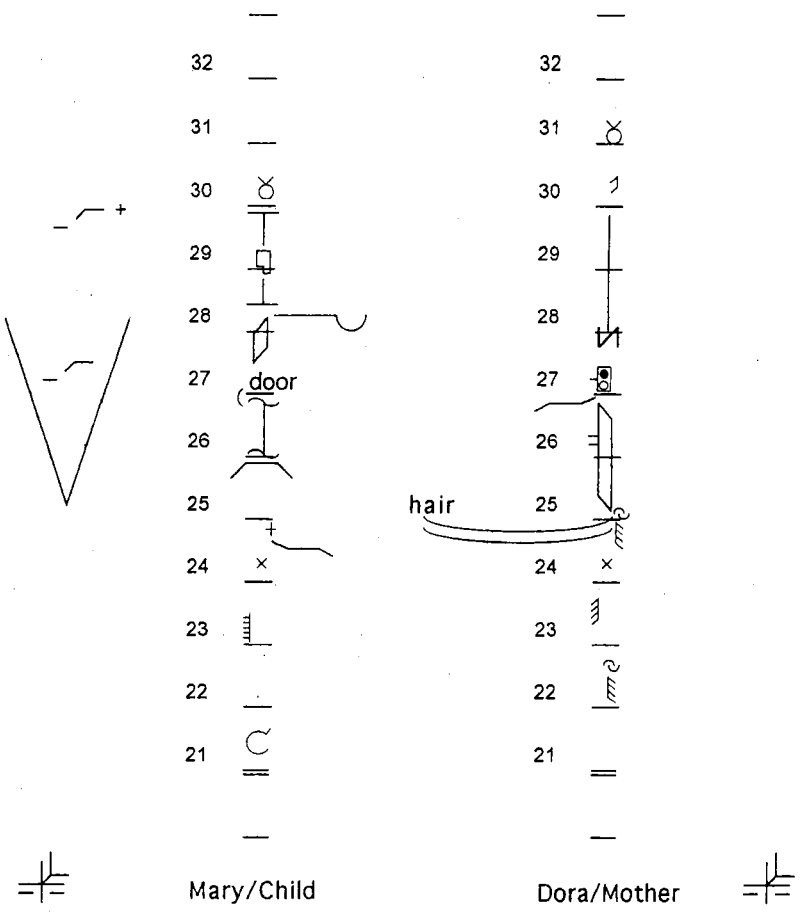
Dora is seen lying on her back alongside Mary, who lies on her left side facing her, nearly hidden behind her, on a bed. With her right arm around Mary's shoulders, Dora addresses a book that she holds in her left hand. Mary lies on Dora's right arm with her right hand on Dora's right shoulder. Their feet are intertwined.

Dora initiates a change of position in mild remote state (indirect, free) by releasing her right hand from Mary's right shoulder. Mary responds with a quick, free mixed mobile state foot movement, which leads her into a sequence that grows continually more direct throughout the vignette. Mary flexes her spine to arrive sitting exactly in synchrony with Dora's hip flexion that continues the sequence of position-change into a leftward roll. As they change their supports and relationship to each other, Dora's right hand brushes Mary's hair in a light, free flow moment of mild dream state; she then finishes the roll to her left side in various configurations of dream state (force, flow). Mary continues her phrase in mixed awake state with increasing directness and sustainment, standing, then walking to grasp the edge of an open red door in the background, reaching a peak of intense directness as she turns and backs up on a straight path to address a point outside the door.

Meanwhile, Dora extends posturally, arching her back in a passion drive "P-press"/"P-glide" with free flow, sustainment, and fluctuating force. She then rolls further leftward while repositioning the book on the bed to arrive supported by her right hand and the surface of the bed, and ends the vignette supported on the front of her body and her left elbow, arching backward and addressing the book with directness.

Another way to describe the whole scene is to say that they fluctuate between elements and states of vision drive until something happens – whether internal or external – that brings out strength in each of them: a strong, direct severe stable state in Mary, and a brief but luxurious phrase of free, sustained, strong-light passion drive in Dora.

THESIS VIG MOTS Sec:9(03:21:26-03:30:15)/Actions:16/Meas:21-30
Meter:1/SqPB:4/Font:Arial9/ #6 Dora&Mary:Bedroom



APPENDIX E

SUBJECT RECRUITMENT AND SCREENING PROCEDURES

Faculty, staff, and student subjects who were presumed (either through personal acquaintance or peer recommendation) to be native speakers of the languages under investigation were individually contacted by phone or in person by the investigator, who, after greeting the potential subject, posed the following questions:

1. "Are you interested in participating in a linguistics research study that I am conducting?"

[Follow-up explanation] "I am comparing how people describe motion events in American Sign Language, English and Spanish. I would show you several short DVD movie clips and then videotape your descriptions of them. Each clip is less than a minute long and the whole session, including greetings, instructions, and incidental questions, should take about one hour.

[Answer any follow-up questions]

If the subject answered affirmatively, then the investigator proceeded to Question 2.

2. "Is your native language ASL, English, or Spanish?"

Note. Because true native ASL speakers are extremely rare, potential subjects presumed to be fluent in ASL answering negatively were asked two follow-up questions. An acceptable answer to either question satisfied the native/fluency criterion.

[Contingent follow-up question A] "How old were you when you started?"

[Any response indicating pre-school age was acceptable].

[Contingent follow-up question B] 2b) "How long have you spoken it?"

[Twenty years or more was acceptable.]

If the potential subject gave acceptable responses to Questions 1 and 2, then a session was scheduled in a studio at San Jose City College or at the home of the investigator. The subject was provided with consent and release to publish forms to be reviewed immediately or during the interim before the scheduled session, and communication methods for confirming the details of the agreement were established.

APPENDIX F

INSTRUCTIONS TO SUBJECTS

Note. The following script was used in the experiment but not absolutely word for word.

Part A

Investigator: I am going to show you six short videos, one at a time, and after you watch each one I will videotape you standing over there describing what you saw happen.

[Time allowed for questions and answers]

Investigator: Now let's watch Vignette 1. We need to watch it in silence. I'll show it to you twice, then you will walk over there and let me tape your description without any further discussion.

[Subject views Vignette 1 twice]

Investigator: OK, stand over there with your toes at the blue line facing the camera and describe what you saw happen in that video. I'll say "Go."

[Investigator mans camera, gives cue, "Go."

[Subject renders description 1A]

Investigator: Thank you/*gracias*/THANK-YOU

[The above sequence, Part A, was then repeated for Vignette 2, and so on likewise through Vignette 6]

Part B

Investigator: Now let's watch each sequence one more time, and I want you to pay special attention to ow they are moving, that is, the manner and quality of the feeling of the movement.

[Time allowed for questions and answers]

[Subject views Vignette 1 a third time.]

Investigator: OK, let me tape you again while you describe it this time with more emphasis on *how* they are doing what they do.

[Subject renders description 1B]

Investigator: Thank you/*gracias*/THANK-YOU

[Time allowed for questions and answers]

[The above sequence, Part B, was then repeated for Vignette 2, and so on likewise through Vignette 6]

APPENDIX G

SAMPLE LMA SEMANTICS SURVEY FORMS

Note. Three survey forms with different vocabulary were used for each language. In Part 1 the subject simply discussed the meaning of each word while the investigator took notes. In Part 2, the investigator prompted the consultant to answer yes-no to as to whether the word carried the meaning each pre-listed LMA term.

English Form A Part 1	Consultant _____
1. crawl	
2. sneak	
3. spin	
4. tiptoe	
5. throw	
6. shove	
7. smoothe	
8. a) place vs. b) put	
9. carefully	
10. deliberately	
11. really going at it	
12. look look for	
13. fluff up	
14. graceful	

English Form A Part 2	Consultant _____
1. crawl	1. SO hands & knees__ 2. fwd__ low__ 5. slow __ even__ iter__ Strong Light Direct Indirect Sustained Quick Controlled Free
2. sneak	1. SO balls of feet__ 2.oblique__ 3. ref__ 4. prox__ 5. even__ Strong Light Direct Indirect Sustained Quick Controlled Free
3. spin	1. SO foot, feet dflt __ 5. fast__ 5. fast__ iter__ 6.V axis__ Strong Light Direct Indirect Sustained Quick Controlled Free
4. tiptoe	1. SO balls of feet__ 2. fwd__ 5. even__ iter__ Strong Light Direct Indirect Sustained Quick Controlled Free
5. throw	1. hand(s) S>__ 3. source __ (goal __). 4. grasp__5. Strong Light Direct Indirect Sustained <Quick Controlled <Free
6. shove	3. goal__ 4. touch__ 5. impct__/ 1-D__ / centrifg__ Strong Light Direct Indirect Sustained Quick Controlled Free
7. smoothe	3. goal__ 4. hand(s) touch-slide 5.even__ (iter) __ 6. flat ___ Strong Light Direct Indirect Sustained Quick Controlled Free
8. a) place vs. b) put	1. hand(s) S>__ 3. goal__ 4. (grasp)__ 5. a) Strong Light Direct Indirect Sustained Quick Controlled Free
8. carefully	Strong Light Direct Indirect Sustained Quick Controlled Free
9. delib-erately	Strong Light Direct Indirect Sustained Quick Controlled Free
10. really going at it	3. goal__ contact ___ Strong Light Direct Indirect Sustained Quick Controlled Free
11. look vs. look for	2. fwd__ 3. ref. 4. penetrate__ 5. even__. 6. 1-D__ Strong Light Direct Indirect Sustained Quick Controlled Free
12. fluff up	1. hand(s) >__ 3. ref__ 4. touch__ 6. iter__ Strong Light Direct Indirect Sustained Quick Controlled Free
13. graceful	Strong Light Direct Indirect Sustained Quick Controlled Free

Spanish Form A Part 1	Consultant _____
1. aventar	
2. empujar	
3. jalar	
4. tirar	
5. bruscamente	
6. hincarse	
7. tranquilo	
8. consolar	
9. correr	
10. rápidamente	
11. prisa	
12. repente (de)	
13. sigilosamente	
14. traviesa	
15. cuidado	
16. detenerse	
17. reprender	
18. corrigir	

Spanish Form A Part 2	Consultant _____
1. aventar throw away	3. < source Strong Light Direct Indirect Quick Sustained Free Controlled
2. empujar push, shove	3. goal 6. outward cpt Strong Light Direct Indirect Quick Sustained Free Controlled
3. jalar pull at, tug on	3. goal 5. control-free iter or control dur Strong Light Direct Indirect Quick Sustained Free Controlled
4. tirar throw, pull, shoot	Strong Light Direct Indirect Quick Sustained Free Controlled
5. brusca-mente sudden, sharp, violent	Strong Light Direct Indirect Quick Sustained Free Controlled
6. hincarse thrust oneself downward	Strong Light Direct Indirect Quick Sustained Free Controlled
7. tranquilo tranquil, peaceful	Strong Light Direct Indirect Quick Sustained Free Controlled
8. consolar console, comfort	3. patient Strong Light Direct Indirect Quick Sustained Free Controlled
9. correr run,race,flow	1. feet 6. iter Strong Light Direct Indirect Quick Sustained Free Controlled
10. rápidi-mente rapidly, fast, quickly	Strong Light Direct Indirect Quick Sustained Free Controlled
11. prisa speed, haste	Strong Light Direct Indirect Quick Sustained Free Controlled
12. repente sudden move, jerk, impulse	5 sudden control>free Strong Light Direct Indirect Quick Sustained Free Controlled
13. sigilosa-mente stealthily, secretly, slyly	Strong Light Direct Indirect Quick Sustained Free Controlled

14. traviesa playful, naughty, mischievous	Strong Light Direct Indirect Quick Sustained Free Controlled
15. cuidado concern, caution, carefulness	3. other situation or quality Strong Light Direct Indirect Quick Sustained Free Controlled
16. detenerse hold back, control self	6. inward cpt Strong Light Direct Indirect Quick Sustained Free Controlled
17. reprender reprimand	Strong Light Direct Indirect Quick Sustained Free Controlled
18. corrigir correct	3. focus Strong Light Direct Indirect Quick Sustained Free Controlled

APPENDIX H

LMA SEMANTICS IN LINGUISTIC TOKENS

			English a-cons
Lexeme	LMA effort configuration	LMA dynamic elements: Effort factors and/or elements	LMA static elements
abrasive		strong	
agressive	stable: severe	strong + direct	
angry, -ly	dream	strong + flow	
authoritative	stable	force + direct	
bump into	passion	force + time + free	contact
calm	P-float	light+ free + sustained	
care for	A-glide or A-float	light + focus + sustained	
careful, -ly	S-press or S-wring	direct + sustained +controlled or indirect + sustained + controlled	
caress	P-float	light + free + sustained	contact
caring, -ly	A-glide	light + direct + sustained	
cautious, -ly	V-press or V-wring	direct + sustained +controlled or indirect + sustained + controlled	
clean			contact
climb			contact support
climb down			contact support
climb up			contact support
come up		direct	
comfort	float or glide in any drive	light + focus + sustained + free	
comfortably	dream: mild	light + free	
console	float or glide in any drive	light + focus + sustained + free	

			English con-g
Lexeme	LMA effort configuration	LMA dynamic elements: Effort factors and/or elements	LMA static elements
control	remote	focus + controlled	
convey			contact support
cradle	stable: mild	light + indirect	form: round contact support on arms
crawl			support by hands & knees
creep	mobile: mixed	sustained + controlled	support by hands & knees
crouch			Form: rounded
crouch down			Form: rounded
cry		fluctuating flow	
deliberate, -ly	awake: mixed	direct + sustained	
direct, -ly		direct	
feverish, -ly	dream: mixed	strong + free	
finger-waving	V-tap	direct + quick + free	
fluff up	remote: mild	light + free	contact
focused		direct	
frantic, -ly	V-flick or V-slash	indirect + quick + fluctuating flow	
friendly	stable: mild	light + free	
gentle, -ly	P-float	light + sustained + free	
get onto one's knees			support: by knees
get to one's knees			support: by knees
going for the throat	remote: severe	direct + controlled	
graceful, -ly	dream: mild	light + free	

			English h-pe
Lexeme	LMA effort configuration	LMA dynamic elements: Effort factors and/or elements	LMA static elements
happy, -ly	dream: mild	light + free	
hard	dream: severe	strong + controlled	
having no time for		quick	
hide		indirect	
hold		controlled	contact (sometimes supporting)
hold oneself back	dream: severe	strong + controlled	
hug	dream	force + flow	form: rounded
joyous, -ly	dream: mild	light + free	
laugh	passion	force + time + flow	
lift		force	supporting
lift up	stable	force + focus	supporting
look for		focus	
look to see	awake: mixed	direct + sustained	
meander	awake: mild	indirect + sustained	
mindless, -ly	P-float	light + sustained + free	
move X out			contact support
nice, -ly	dream	light + flow	
on one's heels			support on
overreact	P-slash	strong + free + quick	
pause		sustained	
pensive			
perturbed	dream	strong + flow	

			English pl-rel
Lexeme	LMA effort configuration	LMA dynamic elements: Effort factors and/or elements	LMA static elements
place	remote: severe	direct + controlled	contact + supporting
playful, -ly	flick or tap in any drive	light + focus + quick + free	
pouf	A-flick	light + indirect + quick	contact
pull on	stable: severe	strong + direct	contact
pull up	stable: severe	strong + direct	contact
pull X out		strong	contact
push	stable: severe	strong + direct	contact
push X back		strong	contact
put		direct	contact + supporting
put a hand on	S-press	strong + direct + controlled	contact
put X down		direct	contact + support
put-offish	remote: severe	direct + controlled	
quick, -ly		quick	
quiet, -ly	dream: mixed	light + controlled	
raise oneself up		force	form + support
rapid, -ly	mobile: mixed	quick + free	
reach for		direct	
react	mobile	time + flow	
read		direct	
really go at it	S-press	strong + direct + free	
relax		free	

			English re-sta
Lexeme	LMA effort configuration	LMA dynamic elements: Effort factors and/or elements	LMA static elements
remove		focus	contact + supporting
reprimand	S-punch	strong + direct + controlled	
robotic, -ly	remote	time + controlled	
rub	dream	force + flow	contact (+ motion)
run	rhythm: mixed	quick + free	support by feet
run into	V-tap	direct + quick + free	contact
run up to	V-tap	direct + quick + free	contact
scold	S-glide	light + direct + free	
seductive		free	
shake	P-flick or P-slash	Force+quick+free	contact (sometimes supporting)
shove	A-punch	strong+ direct+quick	contact
sit back			support by hips
sit there			support by hips
skip	P-flick	light + quick + free	support by feet
smoothe off	A-glide	light + direct + sustained	contact (+ motion)
sneak up, sneak up on, or sneak up behind	S-flick becomes S-tap	light + indirect + controlled > light + direct + controlled	support by feet
sneak, -y, -ily	S-flick	light + indirect + controlled	
soft	dream: mild	light + free	
startle	P-slash	strong + free + quick	
stash		focus	contact + support

			English st-w
Lexeme	LMA effort configuration	LMA dynamic elements: Effort factors and/or elements	LMA static elements
step down			support by feet
step up			support by feet
step up on			support by feet on X
stern, -ly	S-punch	strong + direct + controlled	
stick X into		focus	contact + support
-stiff		free	
sudden, -ly		quick	
tell		direct	
throw	P-slash	strong + quick + free	contact
tiptoe	dream: mixed	light + controlled	support by balls of feet
toss	dream	force + free	contact
tug	stable	strong	contact
tug on	stable	strong	contact
walk			form: long support: by feet
wash			contact
wave	S-float	light + indirect + free	
wipe away		direct	contact (+ motion)
work	stable	force + focus	

			Spanish a-ca
Lexeme & gloss	LMA effort configuration	LMA dynamic elements: Effort factors and/or elements	LMA static elements
abrazar "to embrace"	dream	force + flow	form: round contact
abrir "to open"			contact
acomodar "to accomodate, to adapt"	remote: mild	indirect + free	
agacharse "to bend oneself"			form: round
agarrar "to grasp"			form: round contact
alzar "to lift up"	stable	force + focus	contact support
amor (con amor) "with love"	P-float	light + free + sustained	
asustar "to startle"	P-slash	strong + quick + free	
bajarse "to lower oneself, to stoop"			form: round
buscar "to seek, to search for"		direct	
cabillitos "like a little horseman"			support by and on
calladamente "quietly"	dream: mixed	light + controlled	
caminar "to walk"			form: long support: by feet
caminar así "to walk so"			form support

			Spanish co-fre
Lexeme & gloss	LMA effort configuration	LMA dynamic elements: Effort factors and/or elements	LMA static elements
concentrada "concentrated"	remote: severe	direct + controlled	
consolar "to console"	float or glide in any drive	light + focus + sustained + free	
consuelo "consolation"	float or glide in any drive	light + focus + sustained + free	
controlarse "to control oneself"	dream: severe	strong + controlled	
correr "to run"	mobile: mixed	quick + free	support by feet
corregir "to correct"	stable: severe	strong + direct	
cuidado "caution"	V-press or V-wring	strong + focus + control	
detenerse "to restrain oneself"	dream: severe	strong + controlled	
empujar "to push, shove"	A-punch	strong + direct + quick	
encontrar "to encounter"			contact
enfocada "focused"		direct	
enojada "angry"	dream	strong + flow	
esconder "to hide"		indirect	
explicar "to explain"	awake	direct + time	
fregar "to scrub"	stable: severe	strong + direct	contact

			Spanish fu-p
Lexeme & gloss	LMA effort configuration	LMA dynamic elements: Effort factors and/or elements	LMA static elements
fuerte "strong"		strong	
guardar "to keep safe"	stable	strong + focus	
hincarse "to contract oneself, crouch"			form: round
jalon "an abrupt, strong pull; a jerk"	A-punch	strong + direct + quick	contact
jalar "to pull"	stable: severe	strong + direct	contact
jugar "to play"	flick or tap in any drive	light + focus + quick + free	
levantar "to lift"			contact support
limpiar "to clean"			contact
llorar "to cry"	dream	fluctuating force + flow	
meter "to place"	remote: severe	direct + controlled	contact support
pensar "to think"		time	
pensar en "to think about, to ponder"	mobile or remote	sustained + flow or focus + flow	
poner to put		direct	contact support
poner la atención a "to attend, gaze at"	awake: mixed	direct + sustained	

			Spanish q-trab
Lexeme & gloss	LMA effort configuration	LMA dynamic elements: Effort factors and/or elements	LMA static elements
quitar "to remove"		direct	contact support
rápidamente "rapidly"	mobile: mixed	quick + free	
reclamar "to demand"	stable: severe	strong + direct	
repente, de "quickly"		quick	
reprender "to reprimand" or "to scold"	S-punch or S-glide	strong + direct + controlled or light + direct + free	
sacar "to get"			contact support
secar "to dry"			contact
sentada "seated"			form support by & on
sigilosamente "stealthily"	A-float	light + indirect + sustained	
sin pendiente "without worry"	P-float	light + sustained + free	
sorprender "to surprise"	awake	force + quick	
subir "to climb"			contact support by & on
ternura "tenderness"	P-float	light + sustained + free	
tirar "to throw, to hurl"	P-slash	strong + quick + free	contact support
trabajar "to work"	stable	force + focus	

			Spanish tran-trav
Lexeme & gloss	LMA effort configuration	LMA dynamic elements: Effort factors and/or elements	LMA static elements
tranquilo "calm"	P-float	light + free + sustained	
tranquilomente "calmly"	P-float	light + free + sustained	
traviesa "mischievous"	stable: mild	light + indirect	

Note. This ASL/LMA glossary includes only Signs, not classifiers.

ASL (all)

Lexeme & gloss	LMA effort configuration	LMA dynamic elements: Effort factors and/or elements	LMA static elements
ANGRY	dream	strong + flow	
CLIMB			contact support by & on
CRAWL			support by hands & knees
DAY-DREAM	P-float	light + sustained + free	
ENJOY	P-glide or P-press	force + sustained + free	
GET-UP-ON			support by & on
KNEEL			form contact by & on
LAUGH-AT-HER	S-glide	light + direct + free	
LEISURELY	mobile: mild	sustained + free	
LOOK-OUT-OUT	awake: mixed	direct + sustained	
READ		direct	
RUN	rhythm: mixed	quick + free	support by feet
SCOLD	S-glide or S-press	light + direct + free or strong + direct + free	
SEARCH		focus	
SEE		direct	
TALK-TO-HER		direct	
THROW	P-slash	strong + quick + free	contact
THROW-DOWN	S-press	strong + direct + free	contact
WALK			form: long support by feet

APPENDIX I

LINGUISTIC TOKENS IN FOCAL EVENT 18 DESCRIPTIONS

English		**Spanish**		
Token	Syn	*Token*	English gloss	Syn
1. climb	V	*abrir*	"to open"	Vt
2. climb down	V+S	*abajo*	"below"	Adv
3. climb up	V+S	*acomodar*	"to accomodate," "to fit X in"	V
4. come in	V+S	*agacharse*	"to bend oneself"	Vrx
5. come into	V+S	*agarrar*	" to grasp"	Vt
6. cradle	Vt	*arriba*	"above"	Adv
7. crawl	V	*bajar*	"to descend"	V
8. crawl into	Vt+S	*bajarse*	"to stoop"	Vrx
9. crouch	V	*bajo*	"low"	Adj
10. enter	Vt	*buscar*	"to search for"	Vt
11. further into	Adv	*cambiar*	"to change"	V
12. get to one"s knees	Vt+S	*caminar*	"to walk"	V
13. get onto one"s knees	V+S	*caminar así*	"to walk like this"	VP
14. go	V	*de abajo*	"lower"	PP
15. hide	V	*de arriba*	"upper"	PP
16. high	Adj	*dentro de*	"inside of"	PP
17. lower	Adj	*en el alacena*	"in the cabinet"	PP
18. move X out	Vt+S	*en el piso*	"on the floor"	PP
19. on one"s heels	PP	*en el suelo*	"on the ground"	PP
20. open	Vt	*en un cabinete*	"in a cabinet"	PP
21. open up	Vt+S	*entrar*	"to enter"	Vt
22. place	Vt	*guardar*	"to keep X safe"	Vt
23. pull X out	Vt+S	*hincarse*	"to crouch	Vrx
24. push X back	V+S	*meter*	"to place"	Vt
25. put	Vt	*poner*	"to put"	Vt
26. put X down	Vt+S	*sacar*	"to get"	Vt
27. reach into	Vt+S	*subir*	"to climb"	V
28. remove	Vt	*tomar*	"to take"	Vt
29. sit there	V+S			
30. sit back	V+S			
31. stash	Vt			
32. step down	V+S	**ASL**		
33. step up	V+S	**SIGNS**	**Classifiers**	**Indexes**
34. step up on	Vt+S	1. ENTER	1. biped	1. down-there
35. stick X into	Vt+S	2. SEARCH	2. flat/vertical (door)	2. over-there
36. turn	V	3. SEE		
37. upper	Adj	4. WALK	3. person	
38. walk	V		4. quadruped	
39. walk in	V+S			
40. walk into	V+S			

APPENDIX J

COPY OF IRB/HUMAN SUBJECTS LETTER

San José State
UNIVERSITY

Office of the Provost
Associate Vice President
Graduate Studies & Research

One Washington Square
San José, CA 95192-0025
Voice: 408-924-2427
Fax: 408-924-2477

E-mail: gradstudies@sjsu.edu
http://www.sjsu.edu

To: Jimmyle Listenbee
1417 Willowtree Court
San Jose, CA 95118

From: Pam Stacks, Ph.D. Pam Stacks
AVP, Graduate Studies & Research

Date: February 21, 2006

The Human Subjects-Institutional Review Board has approved your request to use human subjects in the study entitled:

"Identifying Cross-linguistic Elements of Motion-Quality"

This approval is contingent upon the subjects participating in your research project being appropriately protected from risk. This includes the protection of the anonymity of the subjects' identity when they participate in your research project, and with regard to all data that may be collected from the subjects. The approval includes continued monitoring of your research by the Board to assure that the subjects are being adequately and properly protected from such risks. If at any time a subject becomes injured or complains of injury, you must notify Pam Stacks, Ph.D. immediately. Injury includes but is not limited to bodily harm, psychological trauma, and release of potentially damaging personal information. This approval for the human subject's portion of your project is in effect for one year, and data collection beyond February 21, 2007 requires an extension request.

Please also be advised that all subjects need to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate, or withdrawal will not affect any services that the subject is receiving or will receive at the institution in which the research is being conducted.

If you have any questions, please contact me at (408) 924-2480.

Cc: Soteria Svorou - 0093

APPENDIX K

FIFTY-ONE DATA TABLES SHOWING ANALYSIS OF FOCAL EVENTS 1-17

Item 1. Jane's run														Language: English
LMA: Effort = Mobile State (Mixed: Quick/Free) Form = long Support = by feet														
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors						
Response Tokens #	Mobile: Quick/ Free	Form: long	Sup-port: by feet	Quick	Free	word	syn	CL	Gesture			CA	Voc	
									F G	C G	H G			
Subject 1														
#1		+	+	(+)	(+)	runs	V							
#2	+	+	+	(+)	(+)	runs	V							
#3	+			+		quickly	Adv							
#4	+			(+)	(+)							√		
#5				+							√			
Subj 1 Subtotals	4	2	2	5	2	3		2						
Subject 2														
#1	+	+	+	(+)	(+)	ran	V							
#2	+	+	+	(+)	(+)	is running	V							
#3									√					
Subj 2 Subtotals	2	2	2	2	2	2		1						
Subj 3														
#1	+	+	+	(+)	(+)	runs	V							
#2	+	+	+	(+)	(+)	runs	V							
#3	+			(+)	(+)	frantically	Adv							
#4				+	+					√				
Subj 3 Subtotals	3	2	2	3	3	3		1						
Column Totals	7	6	6	10	7	8 V = 6 other: 2			1	1	1	1		
Total Tokens 12				**Total linguistic 8**				**Total non linguistic 4**						

Notes: ES1 CA +Light, HG +Controlled; ES2 FG +Controlled; ES3 FG + Controlled (3 false Controlled)

Item 1. Jane's run														Language: Spanish
LMA: Effort = Mobile State (Mixed: Quick/Free) Form = long Support = by feet														
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors						
Response Tokens #	Mobile: Quick/ Free	Form: long	Sup-port: by feet	Quick	Free	word	syn	CL	Gesture			CA	Voc	
									F G	C G	H G			
Subject 1														
#1				+		*de repente* 'w/quickness'	PP							
#2	+	+	+	(+)	(+)	*corriendo* 'running'	Adv							
#3	+			(+)	(+)						√			
Subj 1 Subtotals	2	1	1	3	2	2					1			
Subject 2														
#1	+	+	+	(+)	(+)	*corriendo* 'running'	Adv							
#2				+	+	*rápidamente* 'rapidly'	Adv							
#3	+			(+)							√			
Subj 2 Subtotals	2	2	2	3	2	2					1			
Subj 3														
#1	+	+	+	(+)	(+)	*corrió* 'he/she ran'	V.3sg. past							
#2	+	+	+	(+)	(+)	*corre* 'he/she runs'	V.3sg. pres							
#3	+			(+)	(+)						√			
Subj 3 Subtotals	3	2	2	3	3	2			1		1			
Column Totals	7	6	6	9	7	6 V: 2 other: 4			1		3	1		
Total Tokens 12				**Total linguistic 8**				**Total non linguistic 4**						

Notes: S3 HG +direct

Item 1. Jane's run													Language: ASL
LMA: Effort = Mobile State (Mixed: Quick/Free) Form = long Support = by feet													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	Mobile: Quick/ Free	Form: long	Sup-port: by feet	Quick	Free	SIGN	CL	Gesture			CA	Voc/ [IPA]	
								FG moniker	C G	H G			
Subject 1													
#1	+	+	+	(+)	(+)		√						
#2	+	+	+	(+)	(+)		√						
Subj 1 Subtotals	2	2	2	2	2		2						
Subject 2													
#1	+			(+)	(+)			puff cheek					
#2	+	+	+	(+)	(+)	RUN							
#3	+			(+)	(+)							[pfB:]	
#4	+	+	+	(+)	(+)	RUN							
#5											√		
Subj 2 Subtotals	4	2	2	4	4	2		1			1	1	
Subject 3													
#1	+	+	+	(+)	(+)		√						
#2	+	+	+	(+)	(+)		√						
#3	+	+	+	(+)	(+)	RUN							
#4	+			(+)	(+)			puff cheek					
#5	+			(+)	(+)							[pfB:]	
Subj 3 Subtotals	5	3	3	5	5	1	2	1				1	
Column Totals	**11**	**7**	**7**	**11**	**11**	**3**	**4**	**2**			**1**	**2**	
Total Tokens 12				**Total linguistic 7**				**Total non linguistic 5**					

Note: S2 sign: +Direct

Item 2. Jane's shove								Language: English					
LMA: A-Punch (Strong/Direct/Quick) Contact: with hands													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	A-Punch	Strong	Direct	Quick	Contact	word	syn	CL	Gesture			CA	Voc
									FG	CG	HG		
Subject 1													
#1					+	bumps into	Vt+S						
#2	+	(+)	(+)	(+)	+ hands						√		
#3													loud
Subj 1 Subtotals	1	1	1	1	2	1		2					
Subject 2													
#1	+	(+)	(+)	(+)	(+)	shoved	Vt						
#2			+	+						√			
#3		+											loud
Subj 2 Subtotals	1	2	2	2	1	1		2					
Subj 3													
#1			(+)	+	+	runs into	Vt+S						
#2	+	(+)	(+)	(+)	+						√		
Subj 3 Subtotals	1	1	2	2	2	1		1					
Column Totals	**3**	**4**	**5**	**5**	**5**	**3**				**1**	**2**		**2**
Total Tokens 8				**Total linguistic 3**				**Total non linguistic 5**					

Item 2. Jane's shove														Language: Spanish
LMA: A-Punch (Strong/Direct/Quick) Contact: with hands														
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors						
Response Tokens #	A-Punch	Strong	Direct	Quick	Contact	word	syn	CL	Gesture			CA	Voc	
									FG	CG	HG			
Subject 1														
#1	+	+	+	+	+ hands	*empuja* 'pushes,shoves'	Vt.3sg. pres							
#2	+	(+)	(+)	(+)	+						√			
Subj 1 Subtotals	2	2	2	2	2	1		1						
Subject 2	no tokens													
Subj 3														
#1					+	*encontró* 'encountered'	Vt.3sg. past							
#2			+	+	+						√			
Subj 3 Subtotals			1	1	2	1		1						
Column Totals	**2**	**2**	**3**	**3**	**4**	**2**					**2**			
Total Tokens 4				**Total linguistic 2**			**Total non linguistic 2**							

Note: S3 HG +Freee

Item 2. Jane's shove													Language: ASL
LMA: Effort = Mobile State (Mixed: Quick/Free) Form = long Support = by feet													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	A-Punch	Strong	Direct	Quick	Contact	SIGN	CL	Gesture			C A	Voc/ [IPA]	
								FG moniker	C G	H G			
Subject 1	No Tokens												
Subject 2	No Tokens												
Subject 3													
#1	+	(+)	(+)	(+)	(+)		√						
#2	+	(+)	(+)	(+)	(+)		√						
#3	+	(+)	(+)	(+)	(+)		√						
#4	+	(+)	(+)	(+)	(+)						√		
#5	+	(+)	(+)	(+)	(+)						√		
#6				+					√				
#7				+					√				
#8		+		+								[bəp¬]	
#9		+		+								[bəp¬']	
Subj 3 Subtotals	5	7	5	9	5		3		2		2	2	
Column Totals	**5**	**7**	**5**	**9**	**5**		**3**		**2**		**2**	**2**	
Total Tokens 9				**Total linguistic 3**				**Total non linguistic 6**					

Note: S3 CG's +Free, S's +Controlled>Free

Item 3. Dora's tear-wipe LMA: A-Press (Strong/Direct/Sustained) & A-Glide (Light/Direct/Sustained); Contact: hand to face, sliding									Language: English					
	LMA Elements						Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	A-Glide /Press	Strong	Light	Direct	Sus-tained	Contact	word	syn	L	Gesture			CA	Voc
										F	C	H		
Subject 1														
#1				+		+Slide	wipes away	Vt+S						
#2			+		+		gently	Adv						
#3	G		(+)	(+)	(+)	+Slide	smoothes off	Vt+S						
#4			+		+						√			
S1Subtotal	1 Glide		3	2	3	2	3		1					
Subject 2														
#1				+		+Slide	wiped away	Vt+S						
#2			+											[']
S2Subtotal			1	1		1	1		1					
Subj 3														
#1		+				+Slide	rubbed	Vt						
#2			+		+	+	caress	N						
#3		+				H>F+Sld	rubs face	Vt						
#4	1 glide		+	+	+		caringly	Adv						
#5		+					harder	Adv						
#6		+										√		
#7			+				softer	Adv						
#8			+									√		
#9		+				+Slide	abrasive	Adj						
S3Subtotal	2 Glide	5	4	1	2	4	7		2					
Column Totals	**2 Glide**	**5**	**8**	**4**	**5**	**7**	**11**				**1**	**2**		**1**
Total Tokens 15				**Total linguistic 11**				**Total non linguistic 4**						

Notes:

Item 3. Dora's tear-wipe LMA: A-Press (Strong/Direct/Sustained) & A-Glide (Light/Direct/Sustained); Contact: hand to face, sliding									Language: Spanish					
	LMA Elements						Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	A-Glide /Press	Strong	Light	Direct	Sus-tained	Con-tact	word	syn	CL	Gesture F	Gesture C	Gesture H	CA	Voc
Subject 1														
#1						+	*seca* 'dries'	Vt.3sg . pres						
#2			+		+		*con ternura* 'with tenderness'	PP						
#3	+ glide		(+)	(+)	(+)	+							√	
Subject 1 Subtotals	1 g		2	1	2	2	2		1					
Subject 2														
#1				+		+	*quita* 'removes'	Vt.3sg .pres						
#2	+ glide		(+)	(+)	(+)	+						√		
Subject 2 Subtotals	1g		1	2	1	2	1		1					
Subj 3														
#1	+ glide		+	+	+		*para darle consuelo* 'for to give consolation'	PP						
#2	+ glide		+	+	+		*para consolar* 'for to console'	PP						
#3	+ glide		(+)	(+)	(+)	+							√	
Subject 3 Subtotals	3 g		3	3	3	1	2		1					
Column Totals	**5 Glide**		**6**	**6**	**6**	**5**	**5**					**1**	**2**	
Total Tokens 8				**Total linguistic 5**				**Total non linguistic 3**						

Item 3. Dora's tear-wipe LMA: A-Press (Strong/Direct/Sustained) & A-Glide (Light/Direct/Sustained); Contact: hand to face, sliding									Language: ASL				
	LMA Elements						Linguistic coding factors		Non-linguistic coding factors				
Response Tokens #	A-Glide /Press	Strong	Light	Direct	Sus-tained	Con-tact	SIGN	CL	Gesture			CA	Voc [IPA]
									FG moniker	C G	H G		
Subject 1													
#1			+			+						√	
#2		+		+		+						√	
Subj 1 Subtotals		1	1	1		2						2	
Subject 2											√		
#1			+	+		+							
#2			+	+								√	
#3	+ Glide		(+)	(+)	(+)	+						√	
Subj 2 Subtotals	1		3	3	1	2					1	2	
Subject 3													
#1			+	+		+						√	
#2			+			+						√	
Subj 3 Subtotals			2	1		2						2	
Column Totals	**1**	**1**	**6**	**5**	**1**	**6**					**1**	**6**	
Total Tokens 7				**Total linguistic 0**					**Total non linguistic 7**				

Item 4. Tina's wash								Language: English					
LMA: P-Float (Light/Sustained/Free) Contact: hand grasping, or to window, sliding													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	P-Float (Light/ Sustained/ Free)	Light	Sus-tained	Free	Contact	word	syn	CL	Gesture			CA	Voc
									F G	C G	H G		
Subject 1													
#1					+, Grasp	is cleaning	V						
#2		+		+							√		
#3		+				not real aggressive	Adj						
#4	+	(+)	(+)	(+)								√	
Subj 1 Subtotals	1	3	1	2	1	2		2					
Subject 2													
#1					+	is washing	V						
#2					+	is washing	V						
Subj 2 Subtotals					2	2							
Subj 3													
#1					+	washing	Adv						
#2					+	is cleaning	V						
#3	+	(+)	(+)	(+)		mindlessly	Adv						
Subj 3 Subtotals	1	1	1	1	2	3							
Column Totals	**2**	**4**	**2**	**3**	**5**	**7**					**1**	**1**	
Total Tokens 9				**Total linguistic 7**				**Total non linguistic 2**					

Notes:

Item 4. Tina's wash														Language: Spanish
LMA: P-Float (Light/Sustained/Free) Contact: hand grasping, or to window, sliding														
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors						
Response Tokens #	P-Float (Light/ Sustained/ Free)	Light	Sus-tained	Free	Con-tact	word	syn	CL	Gesture			CA	Voc	
									F G	C G	H G			
Subject 1														
#1					+	*está limpiando* 'is cleaning'	V-G							
#2	+	(+)	(+)	(+)		*tranquilomente* 'calmly'	Adv							
Subj 1 Subtotals	1	1	1	1	1	2								
Subject 2														
#1					+	*está limpiando* 'is cleaning'	V-G							
#2					+	*está limpiando* 'is cleaning'	V-G							
Subj 2 Subtotals					2	2								
Subj 3														
#1					+	*está limpiando* 'is cleaning'	V-G							
#2	+	(+)	(+)	(+)		*sin pendiente* 'not worrying'	Adv							
#3		+		+							√			
#4		+									√			
Subj 3 Subtotals	1	3	1	2	1	2		2						
Column Totals	**2**	**4**	**2**	**3**	**4**	**6**					**2**			
Total Tokens 8				**Total linguistic 6**				**Total non linguistic 2**						

Item 4. Tina's wash								Language: ASL				
LMA: P-Float (Light/Sustained/Free) Contact: hand grasping, or to window, sliding												
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors				
Response Tokens #	P-Float Light/ Sustained/ Free	Light	Sus-tained	Free	Contact	SIGN	CL	Gesture			CA	Voc
								FG moniker	C G	H G		
Subject 3												
#1	+	(+)	(+)	(+)	+						√	
#2			+	+	+						√	
Subj 1 Subtotals	1	1	2	2	2							
Subject 2												
#1		+		+							√	
#2		+			+						√	
Subj 2 Subtotals		2		1	1							
Subject 3												
#1			+	+							√	
#2	+	(+)	(+)	(+)	+						√	
#3			+	+	+			bored				
#4			+	+		LEISURE-LY						
#5	+	(+)	(+)	(+)		DAY-DREAM						
Subj 3 Subtotals	2	2	5	5	2	2		1			6	
Column Totals	**3**	**5**	**7**	**8**	**5**							
Total Tokens 9				**Total linguistic 2**				**Total non linguistic 7**				

Note:

Item 5. J's approach									Language: English					
LMA: A-Tap (Light/Direct/Quick) Form: long; Support: by feet														
	LMA Elements						Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	A-Tap (Light/ Direct/ Quick	Light	Direct	Quick	Form	Support	word	syn	'CL'	Gesture			CA	Voc
										FG	CG	HG		
Subject 1														
#1		+	+				snuck up	V+S						
#2		+		+					√					
#3				+			rapidly	Adv						
#4		+		+	+	+	skips	V						
#5	+	(+)	(+)	(+)					√					
#6		+					happily	Adv						
#7		+		+									√	
Subj 1 Subtotals	1	6	1	5	1	1	4		3					
Subject 2														
#1			+		+		came up	V+S						
#2		+	+				sneaks up	V+S						
#3	+	(+)	(+)	(+)					√					
Subj 2 Subtotals	1	2	3	1	1		2		1					
Subj 3														
#1			+	+	+	+	runs up	V+S						
#2	+	(+)	(+)	(+)	+	+			√					
Subj 3 Subtotals	1	1	2	2	2	2	1		1					
Column Totals	**3**	**9**	**6**	**8**	**4**	**3**	**7**		**4**				**1**	
Total Tokens 12				**Total linguistic 7**				**Total non linguistic 5**						

Notes:

Item 5. J's approach									Language: Spanish					
LMA: A-Tap (Light/Direct/Quick) Form: long; Support: by feet														
	LMA Elements						Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	A-Tap (Light/ Direct/ Quick	Light	Direct	Quick	Form	Sup-port	word	syn	'CL'	Gesture			CA	Voc
										F G	C G	H G		
Sub 1 #1		+					*sigilosamente* 'stealthily'	Adv						
#2		+										√		
#3		+					*para que no oiga* 'so that she not hear'	PP						
S1Subtotal		3					2		1					
Subject 2														
#1		+					*calladamente* 'quietly'	Adv						
#2		+		+									√	
S2Subtotal		2		1			1		1					
Subj 3														
#1				+	+	+	*corrió* 'she ran'	V.3sg. past						
#2				+	+	+	*corre* 'she runs'	V.3sg. pres						
#3		+					*traviesa* 'mischievous'	Adj.f						
Subj 3 Subtotals		1		2	2	2	1							
Column Totals		**6**		**3**	**2**	**2**	**6**					**1**	**1**	
Total Tokens 8				**Total linguistic 6**				**Total non linguistic 2**						

Item 5. J's approach														Language: ASL
LMA: A-Tap (Light/Direct/Quick) Form: long; Support: by feet														
	LMA Elements						Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	A-Tap (Light/ Direct/ Quick)	Light	Direct	Quick	Form	Support	SIGN	CL	Gesture			CA	Voc/ [IPA]	
									FG moniker	CG	HG			
Subject 1														
#1			+		+	+		√						
#2		+	+									√		
Subj 1 Subtotals		1	2		1	1	1		1					
Subject 2														
#1				+			RUN							
#2				+					puff cheek					
#3			+	+	+	+		√						
Subj 2 Subtotals			1	3	1	1	2		1					
Subject 3														
#1		+		+	+	+		√						
#2		+		+	+	+						√		
#3		+							devilish					
#4	+	(+)	(+)	(+)								√		
#5		+		+									[hEhE hihihi]	
Subj 3 Subtotals	1	5	1	4	2	2	1		4					
Column Totals	**1**	**6**	**4**	**7**	**4**	**4**	**1**	**3**	**2**			**3**	**1**	
Total Tokens 10				**Total linguistic 4**					**Total non linguistic 6**					

Item 6. J's surprise														Language: English
LMA: A-Tap (Light/Direct/Quick) Contact: hands grasp skirt														
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors						
Response Tokens #	A-Tap (Light/Direct/ Quick	Light	Direct	Quick	Contact	word	syn	'CL'	Gesture			CA	Voc	
									F G	C G	H G			
Subject 1														
Subj 1 #1		+		+	+	poufed	Vt							
#2		+		+							√			
#3		+		+								√		
#4		+			+	fluffs up	Vt+S							
S1Subtotal		4		3	2	2		2						
Subject 2														
#1		+		+		playful	Adj							
#2		+		+						√				
#3		+		+									[']	
#4			+		+	tugged	Vt							
#5		+		+		playfully	Adv							
Subj 1 Subtotals		4	1	4	1	3		2						
Subj 3														
#1			+		+	lifts up	Vt+S							
#2	+	(+)	(+)	(+)	+							√		
#3		+	+			saying "Hi."	NP							
#4	+	(+)	(+)	(+)							√			
#5	+	(+)	(+)	(+)	+							√		
Subj 3 Subtotals	3	4	5	3	3	2		3						
Column Totals	**3**	**12**	**6**	**10**	**6**	**7**				**1**	**2**	**3**	**1**	
Total Tokens 14			**Total linguistic 7**				**Total non linguistic 7**							

Item 6. J's surprise								Language: Spanish					
LMA: A-Tap (Light/Direct/Quick) Contact: hands grasp skirt													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	A-Tap (Light/Direct/ Quick	Light	Di-rect	Quick	Con-tact	word	syn	CL	Gesture			C A	Voc
									F G	C G	HG		
Subject 1 #1			+		+	*jala* 'she pulls'	Vt.3sg. pres						
#2	+	(+)	(+)	(+)	+ grasp							√	
#3		+				*no un jalon* 'not a jerk'	N						
#4		+				*no muy fuere* 'not very strong'	Adj						
#5	+	(+)	(+)	(+)	+ grasp							√	
S1Subtotal	2	4	3	2	3	3		2					
Subject 2 #1		+		+		*quiere jugar* 'she wants to play'	Inf						
#2				+		*asusta* 'she startles'	Vt.3sg. pres						
#3			+	+	+						√		
S2Subtotal		1	1	3	1	2		1					
Subject 3 #1					+	*levantándole* 'lifting it'	Adv						
#2			+		+	*alzarle* 'to lift it up'	Inf						
#3	+	+				*traviesa* 'mischievous'	Adj.f						
#4	+	(+)	(+)	(+)	+ grasp						√		
S3Subtotal	2	2	2	1	3	3		1					
Column Totals	**4**	**7**	**6**	**6**	**7**	**8**					**2**	**2**	
	Total Tokens 12					**Total linguistic 8**		**Total non linguistic 4**					

Item 6. J's surprise													Language: ASL
LMA: A-Tap (Light/Direct/Quick) Contact: hands grasp skirt													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	A-Tap (Light/Direct/ Quick)	Light	Direct	Quick	Contact	SIGN	CL	Gesture			CA	Voc [IPA]	
								FG moniker	CG	HG			
Subject 1													
#1	+	(+)	(+)	(+)	+ grasp						√		
#2			+	+	+ grasp						√		
Subj 1 Subtotals	1	1	2	2	2			2					
Subject 2													
#1	+	(+)	(+)	(+)	+ grasp						√		
#2		+		+				surprise					
#3			+	+	+ grasp						√		
Subj 2 Subtotals	1	2	2	3	2			3					
Subject 3													
#1	+	(+)	(+)	(+)	+ grasp		√						
#2		+		+	+ grasp						√		
#3	+	(+)	(+)	(+)							√		
#4		+	+			LAUGH-AT-HER							
#5		+						devilish					
#6		+		+								[hEhE]	
Subj 3 Subtotals	2	6	3	4	2	2		4					
Column Totals	**4**	**9**	**7**	**9**	**6**	**1**	**1**	**2**			**6**	**1**	
Total Tokens 11				**Total linguistic 2**				**Total non linguistic 9**					

Note:

Item 7. Tina's Toss														Language: English
LMA: S-Slash (Strong/Direct/Free) Contact: release sponge														
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors						
Response Tokens #	S-press (Strong/Direct/ Free)	Strong	Direct	Free	Contact = release	word	syn	'CL'	Gesture			CA	Voc	
									FG	CG	HG			
Subject 1														
#1		+				angry	Adj							
#2	+	+	+	+	+	threw down	Vt+S							
#3				+	+						√			
#4		+		+							√			
#5		+											loud, harsh	
#6		+	+			aggressive	Adj							
#7		+		+	+	throws	Vt+S							
#8		+		+	+					√				
S1Subtotal	1	7	2	5	4	4		4						
Subject 2														
#1		+		+		overreacted	V							
#2		+		+	+	throwing	Adv							
#3									√					
#4	+	+	+							√				
S2Subtotal	1	3	1	2	1	2		2						
Subject 3														
#1				+	+	tossed	Vt							
#2		+				perturbed	Adj							
Subj 3 Subtotals		1		1	1	3								
Column Totals	**3**	**11**	**3**	**8**	**6**	**8**			**1**	**2**	**2**		**1**	
Total Tokens 14			**Total linguistic 8**				**Total non linguistic 6**							

Item 7. Tina's Toss														Language: Spanish
LMA: S-Slash (Strong/Direct/Free) Contact: release sponge														
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors						
Response Tokens #	S-Press (Strong/ Direct/Free	Strong	Di-rect	Free	Contact = release	word	syn	CL	Gesture			C A	Voc
									F G	C G	HG		
Subject 1													
#1		+		+		*está enojada* 'is angry'	Adj						
#2		+		+		*se enoja* 'self-angers'	V.3sg. rflx.pres						
#3	√	(+)	(+)	(+)	+							√	
Subject 1 Subtotals	1	3	1	3	1	2		1					
Subject 2													
#1		+		+		*enojada* 'angry'	Adj.						
#2			+		+	*pone su esponja* 'puts her sponge'	Vt.3sg. pres						
#3		+									√		
Subject 2 Subtotals		2	1	1	1	2		1					
Subject 3	no tokens												
Column Totals	**1**	**5**	**2**	**4**	**2**	**4**					**1**	**1**	
	Total Tokens 6					**Total linguistic 4**		**Total non linguistic 2**					

Item 7. Tina's Toss												Language: ASL
LMA: S-Slash (Strong/Direct/Free) Contact: release sponge												
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors				
Response Tokens #	S-Press (Strong/Direct/ Free)	Strong	Direct	Free	Contact = release	SIGN	CL	Gesture			CA	Voc/ [IPA]
								FG moniker	CG	HG		
Subject 1												
#1	+	+	+	+	+	THROW-IT-DOWN						
#2	+	(+)	(+)	(+)	+						+	
#3		+		+		ANGRY						
Subj 1 Subtotals	2	3	2	3	2	2		1				
Subject 2												
#1		+		+	+	THROW-IT						
#2		+		+	+						+	
Subj 2 Subtotals		2		2	2	1		1				
Subject 3												
#1	+	+	+	+	+	THROW-IT-DOWN						
#2			+	+							+	
#3		+			+						+	
Subj 3 Subtotals	2	2	2	2	2	1		2				
Column Totals	**4**	**7**	**4**	**7**	**6**	**4**					**4**	
Total Tokens 8			**Total linguistic 4**					**Total non linguistic 4**				

Note:

Item 8. Tina's Scold							Language: English					
LMA: S-Glide (Light/Direct/Free)												
LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	S-Glide (Light/Direct/ Free)	Light	Direct	Free	word	syn	CL	Gesture			CA	Voc
								FG	CG	HG		
Subject 1												
#1	+	(+)	(+)	(+)	scolded	Vt						
#2		+			not angry	Adj						
#3		+		+	graceful	Adj						
#4		+		+						√		
Subject 1 Subtotals	1	4	1	3	3		1					
Subject 2												
#1	+	(+)	(+)	(+)	scolding	N						
#2			+	+	finger-waving	N						
Subject 2 Subtotals	1	1	2	2	2							
Subject 3												
#1			+		reprimands	Vt						
#2		+			in a nice fashion	PP						
#3			+		authoritative	Adj						
#4		+		+	friendly	Adj						
#5		+								√		
Subject 3 Subtotals		3	2	1	4		1					
Column Totals	**2**	**8**	**5**	**6**	**9**					**2**		
	Total Tokens 11				**Total linguistic 9**		**Total non linguistic 2**					

Item 8. Tina's Scold							Language: Spanish					
LMA: S-Glide (Light/Direct/Free)												
LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	S-Glide (Light/Direct/ Free)	Light	Direct	Free	word	syn	CL	Gesture			CA	Voc
								F G	C G	H G		
Subject 1												
#1			√							√		
#2	+	(+)	(+)	(+)						√		
#3		1	+	+	*le hace así* 'she makes like this' (CA)	Vt.3sg. pres					(√)	
S1 Subtotal	1	2	3	2	.5		2.5					
Subject 2												
#1			+		*explicar* 'to explain'	Inf						
#2			+		*pone su esponja* 'puts her sponge'	Vt.3sg. pres						
S2 Subtotal			2		2							
Subject 3 #1			+		*reclamar* 'to demand'	Inf						
#2			+		*corrigiendo* 'correcting'	Adv						
#3			+		*repriendola* 'reprimanding her'	Adv						
#4		+	+							√		
S3 Subtotal		1	4		3		1					
Col. Total	**1**	**4**	**9**		**5.5**					**3**	**.5**	
	Total Tokens 9				**Total linguistic 5.5**		**Total non linguistic 3.5**					

Note: a CA introduced by *así* 'like this', 'this way', 'so': a linguistic/non-linguistic merger

Item 8. Tina's Scold					LMA: S-Glide (Light/Direct/Free)						Language: ASL
LMA Elements					Linguistic coding factors		Non-linguistic coding factors				
Response Tokens #	S-Glide (Light/ Direct/Free)	Light	Direct	Free	SIGN	CL	Gesture			CA	Voc/ [IPA]
							FG moniker	CG	HG		
Subject 1											
#1	+	(+)	(+)	(+)	SCOLD						
#2		+	+							√	
#3	+	+		+						√	
Subj 1 Subtotals	2	3	2	2	1		2				
Subject 2											
#1			+		TALK-TO-HER						
#2	+	(+)	(+)	(+)	SCOLD						
#3			+				gaze intense				
#4		+		+						√	
Subj 2 Subtotals	1	2	2	2	2		2				
Subject 3											
#1	+	(+)	(+)	(+)	SCOLD						
#2		+		+						√	
#3		+		+					√		
#4	+	(+)	(+)	(+)						√	
Subj 3 Subtotals	2	4	2	4	1		3				
Column Totals	**5**	**9**	**6**	**8**	**4**		**1**		**1**	**5**	
	Total Tokens 11				**Total linguistic 4**		**Total non linguistic 7**				

Note: light interpretation of SCOLD through nonlinguistic modifiers in these tokens

Item 9. Dora's scrub								Language: English					
LMA: S-Press (Strong/Direct/Free) Support: 2 feet, wide; Contact: hand grasping, or to window, sliding													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	S-Press (Strong/ Direct/Free	Strong	Direct	Free	Contact	word	syn	CL	Gesture			CA	Voc
									FG	CG	HG		
Subject 1													
#1					+ grasp	is cleaning	Vt						
#2		+	+			aggressive	Adj						
#3		+											loud:
#4	+	(+)	(+)	(+)	+	really going at it	Idio-VP						
#5	+	(+)	(+)	(+)	+ grasp							√	
#6		+								√			
Subj 1 Subtotals	2	5	3	2	3	3		3					
Subject 2													
#1					+	is washing	Vt						
#2					+	is washing	Vt						
Subj 2 Subtotals					2	2							
Subj 3													
#1					+ grasp	is cleaning	Vt						
#2		+		+		feverishly	Adv						
#3			+			focused	Adj						
#4				+							√		
Subj 3 Subtotals		1	1	1	1	3		1					
Column Totals	**2**	**6**	**4**	**3**	**6**	**8**				**1**	**1**	**1**	**1**
	Total Tokens 12			**Total linguistic 8**				**Total non linguistic 4**					

Notes:

Item 9. Dora's scrub								Language: Spanish					
LMA: S-Press (Strong/Direct/Free) Support: 2 feet, wide; Contact: hand grasping, or to window, sliding													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	S-Press (Strong/ Direct/Free	Strong	Direct	Free	Con-tact	word	syn	CL	Gesture			CA	Voc
									F G	C G	H G		
Subject 1													
#1			+			*concentrada* 'concentrated'	Adj						
Subj 1 Subtotals			1			1							
Subject 2													
#1		+			+	*con fuerte* 'with strength'	PP						
#2			+			*enfocada* 'focused'							
#3			+						√				
#4			+								√		
Subj 2 Subtotals		1	3		1	2			2				
Subj 3													
#1					+	*está limpiando* 'is cleaning'	V-G						
#2				+	+						√		
Subj 3 Subtotals				1	2	1			1				
Column Totals		**1**	**4**	**1**	**3**	**4**			**1**		**2**		
Total Tokens 7			**Total linguistic 4**				**Total non linguistic 3**						

Item 9. Dora's scrub													Language: ASL
LMA: S-Press (Strong/Direct/Free) Support: 2 feet, wide; Contact: hand grasping, or to window, sliding													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	S-Press (Strong/ Direct/Free	Strong	Direct	Free	Contact	SIGN	CL	Gesture			CA	Voc/ [IPA]	
								FG moniker	C G	H G			
Subject 3													
#1	+	(+)	(+)	(+)	+						√		
#2		+						frown, twist lips					
#3		+	+		+						√		
Subj 1 Subtotals	1	3	2	1	2			3					
Subject 2													
#1		+						frown, twist lips					
#2		+	+		+						√		
#3		+		+							√		
Subj 2 Subtotals		3	1	1	1			3					
Subject 3													
#1	+	(+)	(+)	(+)	+						√		
#2	+	(+)	(+)	(+)	+						√		
#3		+		+						√			
Subj 3 Subtotals	2	3	2	3	2			3					
Column Totals	**3**	**9**	**5**	**5**	**5**			**2**		**1**	**6**		
Total Tokens 9			**Total linguistic 0**					**Total non linguistic 9**					

Note:

Item 10. Mary's tiptoe									Language: English					
LMA: V-Wring (Indirect/Sustained/Controlled) Form: long Support: by balls of feet; holding dress														
	LMA Elements						Linguistic cod. fact.		Non-linguistic coding factors					
Response Tokens #	V-Wring (Indirect/ Sustained/ Controlled)	In-direct	Sus-tained	Con-trolled	Form	Support	word	syn	'CL'	Gesture			CA	Voc
										F G	C G	H G		
Subj 1 #1			+	+		+ feet	creeping	Adv						
#2	+	(+)	(+)	(+)	+								√	
#3			+			+ tip-toe			√					
#4	+	(+)	(+)	(+)	+	+ feet	sneak up on	Vt+S						
#5				+		+ tip-toe	tip-toed	V						
#6				+		+ dress	holding up	Vt+S						
#7		+					not directly	Adv						
#8				+			careful	Adj						
#9		+	+				meandering	V						
#10				+					√					
S1Subtotal	2	4	5	7	2	5	6		3					
Subj 2 #1	+	(+)	(+)	(+)	+	+ feet	sneaking up	Adv						
#2	+	(+)	(+)	(+)	+	+ feet	sneaks out from around	V+S						
#3		+										√		
S2Subtotal	2	3	2	2	2	2	2		1					
Subj 3 #1	+	(+)		(+)	+	+	sneaking	Adv						
#2	+	(+)		(+)	+		sneakily	Adv						
#3	+	(+)		(+)	+		sneaky	Adj						
#4		+	+						√					
S3Subtotal	3	4	1	3	3	1	3		1					
Column Totals	**7**	**11**	**8**	**12**	**7**	**8**	**12**		**3**			**1**	**1**	
Total Tokens 17				**Total linguistic 11**				**Total non linguistic 5**						

Note. S 1 token #10 HG is metaphor for controlled "putting a lid on" w/2-hand 'CL's flat hand & fist/cup

Item 10. Mary's tiptoe									Language: Spanish						
LMA: V-Wring (Indirect/Sustained/Controlled) Form: long; Support: by balls of feet															
	LMA Elements						Linguistic coding factors		Non-linguistic coding factors						
Response Tokens #	V-Wring (Indirect/ Sustained/ Controlled)	In-direct	Sus-tained	Con-trolled	Form	Sup-port	word	syn	CL	Gesture			CA	Voc
										FG	CG	HG		
Subj 1 #1	+	(+)	(+)	(+)			*sigilosamente* 'stealthily'	Adv						
#2		+										√		
#3				+			*para que no escuche* 'so that she not hear'	PP						
S1Subtotal		2	1	2			2		1					
Subj 2 #1				+			*calladamente* 'quietly'	Adv						
#2		+		+									√	
#3		+		+								√		
S2Subtotal		2		3			1		2					
Subj 3 #1		+					*quiere esconder* 'she wants to hide'	V.3sg. past						
#2		+										√		
#3		+	+									√		
S3Subtotal		3	1				1		2					
Column Totals	**1**	**7**	**2**	**5**			**4**					**4**	**1**	
Total Tokens 9				**Total linguistic 4**				**Total non linguistic 5**						

Note: S3 #3 HG represents Mary's state of mind

Item 10. Mary's tiptoe									Language: ASL				
LMA: V-Wring (Indirect/Sustained/Controlled) Form: long; Support: by balls of feet													
	LMA Elements						Linguistic coding factors		Non-linguistic coding factors				
Response Tokens #	V-Wring (Indirect/ Sustained/ Controlled)	In-direct	Sus-tained	Con-trolled	Form	Sup-port	SIGN	CL	Gesture			CA	Voc/ [IPA]
									FG moniker	C G	H G		
Subject 1													
#1			+	+	+	+ t-t		√					
#2	+	(+)	(+)	(+)								√	
Subj 1 Subtotals	1	1	2	2	1	1	1		1				
Subject 2													
#1			+	+	+	+ t-t		√					
#2				+					carefully				
#3		+						√					
Subj 2 Subtotals		1	1	2	1	1	2		1				
Subject 3													
#1	+	(+)	(+)	(+)	+	+		√					
#2	+	(+)	(+)	(+)								√	
#3		+							devilish				
Subj 3 Subtotals	2	3	2	2	1	1	1		1				
Column Totals	**3**	**5**	**5**	**6**	**3**	**3**		**4**	**2**			**2**	
Total Tokens 8				**Total linguistic 4**					**Total non linguistic 4**				

Note:

Focal Event 11. Mary's Prank							Language: English					
LMA: Effort = Rhythm State (Severe: Strong/Quick) Contact: hand grasp, release												
LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	Rhythm (Severe: Strong/Quick)	Strong	Quick	Contact	word	syn	CL	Gesture			CA	Voc
								F G	C G	H G		
Subject 1												
#1	+	(+)	(+)		startled	Vt						
#2			+							√		
#3			+	+							√	
Subj 1 Subtotals	1	1	3	1	1		2					
Subject 2												
#1		+		+	pulled on	Vt+S						
#2			+		playful	Adj						
#3		+		+	pulls up	Vt+S						
Subj 2 Subtotals		2	1	2	3							
Subj 3												
#1	+	+	(+)	(+)							√	
Subj 3 Subtotals	1	1	1	1			1					
Column Totals	2	4	5	4	4					1	2	
	Total Tokens 7				**Total linguistic 4**		**Total non linguistic 3**					

Focal Event 11. Mary's prank							Language : Spanish					
LMA: Effort = Rhythm State (Severe: Strong/Quick) Contact: hand grasp, release												
LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	Rhythm (Severe: Strong/Quick)	Strong	Quick	Contact	word	syn	CL	Gesture			CA	Voc
								F G	C G	H G		
Subject 1												
#1	+	+	(+)		*asusta* 'she startles'	Vt.3sg. pres						
#2	+	+	(+)	(+)	*jalandole* 'pulling it'	Adv						
Subj 1 Subtotals	2	2	2	1	2							
Subject 2												
#1	+	+	(+)		*asusta* 'she startles'	Vt.3sg. pres						
#2	+	+	(+)	(+)						√		
Subj 2 Subtotals	2	2	2	1	1		1					
Subj 3												
#1				+	*levantándole* 'lifting it'	Adv						
#2				+	*levantarle* 'to lift it'	Inf						
Subj 3 Subtotals				2	2							
Column Totals	**4**	**4**	**4**	**4**	**5**					**1**		
	Total Tokens 6				**Total linguistic 5**		**Total non linguistic 1**					

Focal Event 11. Mary's Prank												Language: ASL
LMA: Effort = Rhythm State (Severe: Strong/Quick) Contact: hand grasp, release												
LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	Rhythm State (Severe: Strong/Quick)	Strong	Quick	Contact	SIGN	CL	Gesture			CA	Voc/ [IPA]	
							FG moniker	C G	H G			
Subject 1												
#1	+	(+)	(+)	+						√		
#2	+	(+)	(+)								[pəp˺]	
Subj 1 Subtotals	1	2	2	1			2					
Subject 2												
#1	+	(+)	(+)	+						√		
#2			+				surprise					
Subj 2 Subtotals	1	1	2	1			2					
Subject 3												
#1	+	(+)	(+)	+						√		
#2	+	(+)	(+)								[pəp˺]	
Subj 3 Subtotals	2	2	2	1			2					
Column Totals	**4**	**5**	**6**	**3**			**1**			**3**	**2**	
	Total Tokens 6				**Total linguistic 0**		**Total non linguistic 6**					

Item 12. Dora's Throw														Language: English
LMA: P-Slash (Strong/Quick/Free) Contact: release sponge														
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors						
Response Tokens #	P-Slash (Strong/Quick/ Free)	Strong	Quick	Free	Contact = release	word	syn	'CL'	Gesture			C A	Voc	
									F G	C G	H G			
Subject 1														
#1		+				angry	Adj							
#2	+	(+)	(+)	(+)	+	threw	Vt							
#3	+	(+)	(+)	(+)	+						√			
#4		+											loud, [']	
#5		+		+		aggressive	Adj							
#6	+	+	+	+	+	throws	Vt							
#7	+	(+)	(+)	(+)	+							√		
Subject 1 Subtotals	4	7	4	4	4	4		3						
Subject 2														
#1	+	(+)	(+)	(+)	+	threw	Vt							
#2	+	(+)	(+)	(+)	+	throwing	Adv							
#3		+				angrily	Adv							
#4		+			+	strongly	Adv							
#5		+											loud::	
S2Subtotal	2	5	3	2	3	4		1						
Subject 3	No tokens													
Column Totals	**5**	**12**	**7**	**6**	**7**	**8**					**1**	**1**	**2**	
	Total Tokens 12					**Total linguistic 8**		**Total non linguistic 4**						

Item 12. Dora's Throw														Language: Spanish
LMA: P-Slash (Strong/Quick/Free) Contact: release sponge														
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors						
Response Tokens #	P-Slash (Strong/ Quick/Free	Strong	Quick	Free	Contact = release	word	syn	CL	Gesture			CA	Voc	
									FG	CG	HG			
Subject 1														
#1		+				*enojada* 'angry'	Adj							
#2	+	(+)	(+)	(+)	+						√			
Subject 1 Subtotals	1	2	2	1	1	1		1						
Subject 2														
#1		+				*enojada* 'angry'	Adj							
#2	+	+	+	+	+	*tira la esponja* 'throws the sponge'	Vt.3sg. pres							
#3	+	(+)	(+)	(+)	+						√			
#4	+	(+)	(+)	(+)	+							√		
#5	+	(+)	(+)	(+)		*¡No!* 'No!'								loud, [']
Subject 2 Subtotals	4	5	4	4	3	2.5		2.5						
Subject 3	no tokens													
Column Totals	**5**	**7**	**6**	**5**	**4**	**4**					**2**	**1**	**(1)**	
	Total Tokens 7					**Total linguistic 4**		**Total non linguistic 3**						

Note. S2. token #5 could be counted under linguistic or under vocal nonlinguistic

fsgkl;

Item 12. Dora's Throw													Language: ASL
LMA: P-Slash (Strong/Quick/Free) Contact: release sponge													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	P-Slash (Strong/Quick/ Free)	Strong	Quick	Free	Contact = release	SIGN	CL	Gesture FG moniker	Gesture CG	Gesture HG	CA	Voc/ [IPA]	
Subject 1													
#1	+	(+)		(+)	+	THROW-IT-AWAY							
#2	+	(+)	(+)	(+)	+						√		
#3	+	(+)	(+)	(+)	+							[paw]	
Subj 1 Subtotals	3	3	3	3	3	1		2					
Subject 2													
#1	+	(+)	(+)	(+)	+						√		
Subj 2 Subtotals	1	1	1	1	1			1					
Subject 3													
#1		(+)		(+)	+	THROW-IT-DOWN							
#2	+	(+)	(+)	(+)	+						√		
Subj 3 Subtotals	1	2	1	2	2	1		1					
Column Totals	**5**	**6**	**3**	**6**	**6**	**2**					**3**	**1**	
	Total Tokens 6					**Total linguistic 2**		**Total non linguistic 4**					

Note:

Item 13. Dora's reprimand						Language: English					
LMA: Effort = Remote State (Severe: Direct/Controlled)											
	LMA Elements			Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	Remote (Severe: Direct/Controlled)	Direct	Con-trolled	word	syn	CL	Gesture FG	Gesture CG	Gesture HG	CA	Voc
Subject 1				(Examples below are narrations under CA's)							
#1	+	(+)	(+)	(as if to shake)						√	
#2	+	(+)	(+)	(exaggerated)						√	
#3	+	(+)	(+)	(theatrical)						√	
Subj 1 Subtotals	3	3	3			3					
Subject 2											
#1	+	(+)	(+)	going for the throat	V (idio)						
#2	+	(+)	(+)							√	
Subj 2 Subtotals	2	1	2	1		1					
Subj 3											
#1	+	(+)	(+)	to tell her that's not OK	PP						
#2		+							√		
#3	+	(+)	(+)	put a hand on her	Vt						
#4	+	(+)	(+)	put-offish	Adv						
#5	+	(+)	(+)	stern	Adj						
#6	+	(+)	(+)	reprimand	N						
Subj 3 Subtotals	5	6	5	5		1					
Column Totals	**11**	**10**	**10**	**6**					**1**	**4**	
	Total Tokens 11			**Total linguistic 6**		**Total non linguistic 5**					

Note: S2 #1 FG is a smirk

Item 13. Dora's reprimand						Language: Spanish					
LMA: Effort = Remote State (Severe: Direct/Controlled)											
	LMA Elements			Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	Remote (Severe: Direct/Controlled)	Direct	Con-trolled	word	syn	CL	Gesture			CA	Voc
							F G	C G	H G		
Subject 1											
#1	+	(+)	(+)	*no le hacer algo así* 'not to do anything like this'	Idi. Inf						
#2			+	*se controla* 'she controls herself'	V.3sg. pres.rflx						
#3	+	(+)	(+)							√	
Subj 1 Subtotals	2	2	3	2		1					
Subject 2											
#1		+							√		
Subj 2 Subtotals		1				1					
Subj 3											
#1	+	(+)	(+)	*reprender* 'to reprimand'	Inf						
#2			+	*se detuvo* 'she restrains herself'	V.3sg. pres.rflx						
#3		+								√	
Subj 3 Subtotals	1	2	2	2		1					
Column Totals	**3**	**5**	**5**	**4**					**1**	**2**	
	Total Tokens 7			**Total linguistic 4**		**Total non linguistic 3**					

Note S3 #3 CA is a Quick/Direct "pounce".

Item 13. Dora's reprimand										Language: ASL
LMA: Effort = Remote State (Severe: Direct/Controlled)										
	LMA Elements			Linguistic coding factors		Non-linguistic coding factors				
Response Tokens #	Remote (Severe: Direct/ Controlled)	Direct	Controlled	SIGN	CL	Gesture			CA	Voc/ [IPA]
						FG moniker	C G	H G		
Subject 1										
#1	+	(+)	(+)						√	
#2	+	(+)	(+)					√		
Subj 1 Subtotals	2	2	2			2				
Subject 2										
#1			+			grit teeth				
#2		+		SCOLD						
Subj 2 Subtotals		1	1	1		1				
Subject 3										
#1		+		SCOLD						
#2	+	(+)	(+)						√	
Subj 3 Subtotals	1	2	1	1		1				
Column Totals	**3**	**5**	**4**	**2**		**1**		**1**	**2**	
	Total Tokens 6			**Total linguistic 2**		**Total non linguistic 4**				

S1 #2 HG is 2-hand claw. May be lexical regional

Item 14. Jane's Arch								Language: English					
LMA: P-Float (Light/Sustained/Free) Support by hips on shoulders													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	P-Float (Light/Sustained/ Free)	Light	Sus-tained	Free	Support by & on	word	syn	'CL'	Gesture			CA	Voc
									FG	CG	HG		
Subject 1													
#1					+ by&on	piggyback ride	Np						
Subject 1 Subtotals					1	1							
Subject 2													
#1					+ on							√	
#2					+ by&on	sitting on her mom's shoulders	V +PP						
Subject 1 Subtotals					1	1		1					
Subject 3													
#1					+ by&on	piggyback ride	Np						
#2				+		relaxation	N						
#3				+		not stiff	Adj						
#4		+		+		waving her hair	Vp						
#5			+	+								√	
Subj 3 Subtotals		1	1	4	1	4		1					
Column Totals		**1**	**1**	**4**	**3**	**6**						**2**	
Total Tokens 8			**Total linguistic 6**				**Total non linguistic 2**						

Item 14. Jane's Arch								Language: Spanish					
LMA: P-Float (Light/Sustained/Free) Support by hips on shoulders													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	P-Float (Light/Sustained/Free	Light	Sustained	Free	Support by & on	word	syn	CL	Gesture FG	Gesture CG	Gesture HG	CA	Voc
Subject 1													
#1					+	*caballitos* 'like a little horseman'	Adv						
#2					+	*sentada en los hombros* 'seated on the shoulders'	V.3sg. rflx. pres						
Subject 1 Subtotals					2	2							
Subject 2													
#1					+	*arriba de* 'on top of'	PP						
S2Subtotal					1	1							
Subject 3													
#1		+	+								√		
#2	+	(+)	(+)	(+)								√	
#3	+	(+)	(+)	(+)								√	
#4		+	+										[i::]
Subject 3 Subtotals	2	4	4	2				4					
Column Totals	**2**	**4**	**4**	**2**	**3**	**3**					**1**	**2**	**1**
	Total Tokens 7					**Total linguistic 3**		**Total non linguistic 4**					

S3 #2 CA is a big inhale, narrator is experiencing feeling; #3 CA is more 'showing the action'

Item 14. Jane's Arch												Language: ASL
LMA: P-Float (Light/Sustained/Free) Support by hips on shoulders												
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors				
Response Tokens #	P-Float (Light/Sustain-ed/Free)	Light	Sus-tained	Free	Support by & on	SIGN	CL	Gesture			CA	Voc/ [IPA]
								FG moniker	C G	H G		
Subject 1												
#1					+ on						√	
#2	+	(+)	(+)	(+)							√	
Subj 1 Subtotals	1	1	1	1	1			2				
Subject 2												
#1					+ on	GET-UP-ON	(√)					
#2					+ on						√	
#3			+	+							√	
Subj 2 Subtotals			1	1	2	1		2				
Subject 3												
#1					+ on	GET-UP-ON	(√)					
#2	+	(+)	(+)	(+)							√	
#3	+	(+)	(+)	(+)	+						√	
Subj 3 Subtotals	2	2	2	2	2	1		2				
Column Totals	**3**	**3**	**4**	**4**	**5**	**2**	**(2)**				**6**	
	Total Tokens 8					**Total linguistic 2**		**Total non linguistic 6**				

Note: S2 & S3 #1: biped CL mounts person CL

Item 15. Keegan's entrance									Language: English					
LMA: S-Glide (Light/Direct/Free) Form: long; Support: by feet														
	LMA Elements						Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	S-Glide (Light/ Direct/Free	Light	Di-rect	Free	Form	Sup-port	word	syn	'CL'	Gesture			CA	Voc
										FG	CG	HG		
Subject 1														
#1					+	+	walks in	V+S						
#2			+				deliberately	Adv						
#3			+									√		
#4					+	+	walks into	V+S						
Subj 1 Subtotals			2		2	2	3		1					
Subject 2														
#1						+	enters	V						
Subj 2 Subtotals							1							
Subj 3														
#1					+	+	walks	V						
#2		+		+			comfortably	Adv						
Subj 3 Subtotals		1		1	1	1	2							
Column Totals		**1**	**2**	**1**	**3**	**4**	**6**					**1**		
	Total Tokens 7			**Total linguistic 6**				**Total non linguistic 1**						

Notes:

Item 15. Keegan's entrance									Language: Spanish					
LMA: S-Glide (Light/Direct/Free) Form: long; Support: by feet														
	LMA Elements						Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	S-Glide (Light/ Direct/Free	Light	Di-rect	Free	Form	Sup-port	word	syn	'CL'	Gesture			CA	Voc
										F G	C G	H G		
Subject 1														
#1		+		+			*tranquilo* 'calm'	Adj						
Subj 1 Subtotals		1		1			1							
Subject 2	No tokens													
Subj 3														
#1							*entra* 'enters'	V.3sg. pres						
#2			+				*va a buscar* 'going to seek'	V.3sg. pres & Inf						
Subj 3 Subtotals			1				2							
Column Totals		**1**	**1**	**1**			**3**							
	Total Tokens 3			**Total linguistic 3**				**Total non linguistic 0**						

Item 15. Keegan's entrance									Language: ASL				
LMA: S-Glide (Light/Direct/Free) Form: long; Support: by feet													
	LMA Elements						Linguistic coding factors		Non-linguistic coding factors				
Response Tokens #	S-Glide (Light/ Direct/Free)	Light	Direct	Free	Form	Sup-port	SIGN	CL	Gesture			CA	Voc/ [IPA]
									FG moniker	C G	H G		
Subject 1	No tokens												
Subject 2													
#1					+	+		√					
#2					+	+		√					
Subj 2 Subtotals					2	2		2					
Subject 3													
#1					+	+		√					
#2			+				SEE						
#3		+		+			LEISURELY						
#4					+	+		√					
#5		+		+					easy				
Subj 3 Subtotals		2	1	2	2	2	2	2	1				
Column Totals		**2**	**1**	**2**	**4**	**4**	**2**	**4**	**1**				
	Total Tokens 7			**Total linguistic 6**					**Total non linguistic 1**				

Note:

Item 16. Mary's red door							Language: English					
LMA: Awake State (Mixed: Direct/Sustained) Support/Contact: Leaning												
	LMA Elements				Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	Awake (Direct/ Sustained)	Direct	Sus-tained	S/C	word	syn	CL	Gesture			CA	Voc
								F G	C G	H G		
Subject 1												
#1		+		+ S & + C	puts her left hand on the red door	Vt						
#2		+								√		
#3	+	(+)	(+)	+ S & + C							√ ::	
Subj 1 Subtotals	1	3	1	1/2	1		2					
Subject 2	No dynamic tokens											
Subj 3												
#1	+	(+)	(+)		looks to see	V + Inf						
Subj 3 Subtotals	1	1	1		1							
Column Totals	**2**	**4**	**2**	**1/2**	**2**					**1**	**1**	
	Total Tokens 4				**Total linguistic 2**		**Total non linguistic 2**					

Item 16. Mary's red door												Language: Spanish
LMA: Awake State (Mixed: Direct/Sustained) Support/Contact: Leaning												
	LMA Elements				Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	Awake (Direct/ Sustained)	Direct	Sus-tained	S/C	word	syn	CL	Gesture			CA	Voc
								F G	C G	H G		
Subject 1												
#1			+		*tranquilomente* 'calmly'	Adv						
Subj 1 Subtotals			1		1							
Subject 2												
#1		+			*se pone la atención a la puerta* 'pays atttention or gazes to [out] the door'	VP						
#2	+	(+)	(+)							√ ::		
Subj 2 Subtotals	1	2	1		1		1					
Subj 3	No dynamic tokens											
Column Totals	**1**	**2**	**2**		**2**					**1**		
	Total Tokens 3				**Total linguistic 2**		**Total non linguistic 1**					

Item 16. Mary's red door											Language: ASL
LMA: Awake State (Mixed: Direct/Sustained) Support/Contact: Leaning											
	LMA Elements				Linguistic coding factors		Non-linguistic coding factors				
Response Tokens #	Awake (Direct/ Sustained)	Direct	Sus-tained	S/C	SIGN	CL	Gesture			CA	Voc/ [IPA]
							FG moniker	C G	H G		
Subject 1											
#1	+	(+)	(+)	+S & + C leans						√ ::	
#2	+	(+)	(+)	+S & + C leans						√	
Subj 1 Subtotals	2	2	2	2 & 2			2				
Subject 2											
#1	+	(+)	(+)							√	
Subj 2 Subtotals	1	1	1				1				
Subject 3											
#1	+	(+)	(+)		LOOK-OUT-OUT						
#2	+	(+)	(+)							√ ::	
Subj 3 Subtotals	2	2	2		1		1				
Column Totals	**5**	**5**	**5**	**2/2/2**	**1**					**4**	
	Total Tokens 5				**Total linguistic 1**		**Total non linguistic 4**				

Item 17. Dora's big stretch								Language: English					
LMA: P-Press (Strong/Sustained/Free) Support: elbows, stomach													
LMA Elements						Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	P-Press (Strong/ Sustained/ Free)	Strong	Sustained	Free	Support	word	syn	'CL'	Gesture			CA	Voc
									FG	CG	HG		
Subject 1													
#1					+	raised up	V+S						
Subj 1 Subtotals					1	1							
Subject 2	No tokens												
Subj 3													
#1				+		seductive	Adj						
Subj 3 Subtotals				1		1							
Column Totals				**1**	**1**	**1**							
	Total Tokens 2					**Total linguistic 2**		**Total non linguistic 0**					

Notes: S3 #1 "seductive" had scope over the whole scene.

Item 17. Dora's big stretch								Language: Spanish					
LMA: P-Press (Strong/Sustained/Free) Support: elbows, stomach													
LMA Elements						Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	P-Press (Strong/ Sustained/ Free)	Strong	Sustained	Free	Support	word	syn	'CL'	Gesture			CA	Voc
									FG	CG	HG		
Subject 1	No tokens												
Subject 2	No tokens												
Subject 3	No tokens												
	Total Tokens 0					**Total linguistic 0**		**Total non linguistic 0**					

Item 17. Dora's big stretch													Language: ASL
LMA: P-Press (Strong/Sustained/Free) Support: elbows, stomach													
	LMA Elements					Linguistic coding factors		Non-linguistic coding factors					
Response Tokens #	P-Press (Strong/ Sustained/Free)	Light	Sustai ned	Free	Support	SIGN	CL	Gesture			CA	Voc/ [IPA]	
								FG moniker	C G	H G			
Subject 1	No tokens												
Subject 2	No tokens												
Subject 3													
#1			+	+		ENJOY READING							
Subj 3 Subtotals			1	1		1							
Column Totals			**1**	**1**		**1**							
	Total Tokens 1					**Total linguistic 1**		**Total non linguistic 0**					

Note: